NC 42-SR 1579 (BROADWAY ROAD) IMPROVEMENTS

NC 42, US 421 (Horner Boulevard) in Sanford to SR 1579 (Broadway Road) and SR 1579 (Broadway Road / North Main Street), NC 42 (Avents Ferry Road) to SR 1538 (East Harrington Avenue) in Broadway. Widen to multi-lanes.
Lee County, North Carolina

WBS ELEMENT – 38887.1.1
FEDERAL AID PROJECT NO.: STP-0042(49)
TIP PROJECT NO. R-3830

ADMINISTRATIVE ACTION
CATEGORICAL EXCLUSION

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
AND
N.C. DEPARTMENT OF TRANSPORTATION
submitted pursuant to the National Environmental Policy Act 42 USC 4332(2)(c)

APPROVED:

4/20/2015
Date

FOR Richard W. Hancock, P.E., Manager
Project Development and Environmental Analysis Unit

4/21/2015
Date

for John F. Sullivan, III, P.E., Division Administrator
Federal Highway Administration

NC 42-SR 1579 (BROADWAY ROAD) IMPROVEMENTS

NC 42, US 421 (HORNER BOULEVARD) IN SANFORD TO SR 1579 (BROADWAY ROAD) AND SR 1579 (BROADWAY ROAD / NORTH MAIN STREET), NC 42 (AVENTS FERRY ROAD) TO SR 1538 (EAST HARRINGTON AVENUE) IN BROADWAY. WIDEN TO MULTI-LANES.
LEE COUNTY, NORTH CAROLINA

WBS ELEMENT – 38887.1.1
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CATEGORICAL EXCLUSION

APRIL 2015

Documentation prepared in the Project Development and Environmental Analysis Unit by:

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Project Planning Engineer

Ted Walls 4/20/2015
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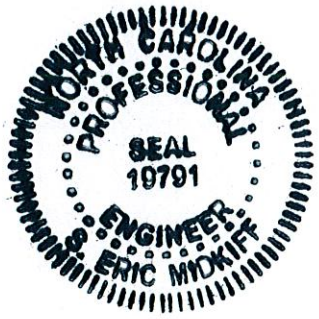

PROJECT COMMITMENTS

NC 42-SR 1579 (BROADWAY ROAD) IMPROVEMENTS

NC 42, US 421 (HORNER BOULEVARD) IN SANFORD TO SR 1579 (BROADWAY ROAD) AND SR 1579 (BROADWAY ROAD / NORTH MAIN STREET), NC 42 (AVENTS FERRY ROAD) TO SR 1538 (EAST HARRINGTON AVENUE) IN BROADWAY. WIDEN TO MULTI-LANES.
LEE COUNTY, NORTH CAROLINA
WBS ELEMENT – 38887.1.1 / FEDERAL AID PROJECT NO.: STP-0042(49)

TIP PROJECT NUMBER: R-3830

Roadway Design Unit, Highway Division 8 Construction, Roadside Environmental Unit, Geotechnical Engineering Unit

- All cut and fill slopes should be constructed no steeper than 2:1 (H:V).
- Sediment and erosion control measures, sufficient to protect water resources, must be implemented and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual* and the most recent version of NCS000250.
- Additional investigation will be needed if project geo-environmental sites are impacted.

Project Development and Environmental Analysis Unit, Roadway Design Unit, Highway Division 8 Construction, Roadside Environmental Unit

- Roadway design plans must provide treatment of storm water runoff through best management practices, as detailed in the most recent version of the *NCDWQ Stormwater Best Management Practices.*
- NCDOT will confine all construction activities to a temporary construction easement within the permanent utility easement on the historic Sloan House property, located at 2712 Broadway Road (SR 1579), Sanford, NC. Tree avoidance measures and an appropriate landscape plan of low, ornamental plantings of native species, such as Dogwoods and Redbuds, will be executed in the utility easement and behind it, if the property owner is amenable.
- The City of Sanford has requested beautification plantings in the proposed median, within the Sanford City Limits. This will be coordinated with the City of Sanford.

Highway Division 8 Construction, Project Development and Environmental Analysis Unit

- If the project involves clearing of trees greater than 3 inches in diameter or demolition of bridges or buildings after April 1, 2015, the NCDOT Highway Division 8 staff will coordinate with the NCDOT Project Development and Environmental Analysis Unit, as soon as possible, so that the NCDOT staff can obtain an Endangered Species Act concurrence from the US Fish and Wildlife Service, regarding the Northern Long-Eared Bat. Upon construction completion, tree clearing associated with this project must be tracked and reported (in acreage) to the NCDOT PDEA Natural Environment Section (NES).

Highway Division 8 Construction & Maintenance

- Four species from the *NCDOT Invasive Exotic Plant List for North Carolina* were found to occur in the project study area. The species identified were Russian olive (Watch List), Chinese privet (Threat), Japanese stilt grass (Threat) and Japanese honeysuckle (Moderate Threat). The NCDOT will manage invasive plant species on department right-of-way, as appropriate.

CATEGORICAL EXCLUSION

Prepared by the Project Development and Environmental Analysis Unit,
of the North Carolina Department of Transportation,
in Consultation with the Federal Highway Administration

SUMMARY

1. Type of Action

This is a Federal Highway Administration (FHWA) Administrative Action, Categorical Exclusion (CE).

2. Description of Action

The North Carolina Department of Transportation (NCDOT) proposes to improve NC 42 / SR 1579 (Broadway Road), from US 421 (Horner Boulevard) in Sanford to SR 1538 (East Harrington Avenue) in Broadway, in Lee County. Figures 1 and 2 depict the project location and the beginning and ending project limits. The purpose of the proposed project is to improve user safety and traffic operations along NC 42 / SR 1579 (Broadway Road), within the project limits. This project will aid in reducing the numerous rear-end and run-off-the-road crashes, currently occurring along NC 42 / SR 1579 (Broadway Road), within the project limits. The project is approximately 5.4 miles in length, and is a three-lane to five-lane to two-lane facility that will be improved to a four-lane, median-divided and a three-lane facility, retaining the five-lane section.

The proposed improvements to NC 42-SR 1579 (Broadway Road) are federally funded. Project Number R-3830 is included in the NCDOT 2014-2020 Transportation Improvement Program (TIP). Right-of-way acquisition and construction are scheduled in federal fiscal years 2016 and 2018, respectively. The current total estimated cost of the project is $28,297,968, consisting of $6,319,629 for right-of-way acquisition and $21,978,339 for construction.

3. Alternatives Considered

The alternatives studied for the proposed action include the No-Build Alternative and the Build Alternative.

The No-Build Alternative offers no improvements to the project area, and does not improve vehicular safety along this section of NC 42-SR 1579 (Broadway Road). Since the No-Build Alternative does not address the purpose and need of the proposed action, it is not recommended.

The Build Alternative (*Recommended*) proposes widening NC 42-SR 1579 (Broadway Road) to multi-lanes, with turn-lanes constructed at SR 1523 (Rice Road), SR 1529 (Cox Mill Road) and SR 1579 (Broadway Road). The proposed project will be designed as a four-lane, median-divided facility along NC 42 (Broadway Road), from US 421 (Horner Boulevard) to the existing five-lane section at the US 421 interchange, and from there to SR 1579 (Broadway Road), at NC 42 (Avents Ferry Road). The remainder of the proposed project will be designed as a three-lane facility with a continuous center turn-lane, from SR 1579 (Broadway Road) at NC 42 (Avents

Ferry Road) to SR 1538 (East Harrington Avenue), in Broadway. The length of the proposed improvements along NC 42-SR 1579 (Broadway Road), is approximately 5.4 miles.

4. Coordination

NCDOT Project Development staff consulted with the Federal Highway Administration (FHWA), the US Army Corps of Engineers (USACE), the North Carolina Wildlife Resources Commission (NCWRC), the North Carolina Department of Environment and Natural Resources -Division of Water Quality (NCDWQ), the Triangle Area Rural Planning Organization (TARPO) and the Sanford/Lee County Planning and Development staff, during the planning, development and public involvement phases of this project. The USACE staff also verified project stream and wetland delineation on-site, with the NCDOT staff, prior to the final reporting of these findings. Per the NCDOT Cultural Resources staff, a survey recommended by the North Carolina Historic Preservation Office (HPO), was required for this project. Resource agency comments and correspondence is included in Appendix 1.

5. Summary of Beneficial and Adverse Environmental Impacts

Table S1 contains a summary of the quantifiable impacts associated with the proposed improvements along NC 42-SR 1579 (Broadway Road). The impacts associated with the proposed project are described in detail in Section V of this document.

6. Actions Required by Other Agencies

Constructing the proposed action will result in impacts to jurisdictional surface waters. No other action is required by other agencies.

7. Additional Information

Additional information concerning the assessment can be obtained by contacting the following persons:

John F. Sullivan III, P. E., Division Administrator
Federal Highway Administration
310 New Bern Avenue, Suite 410
Raleigh, North Carolina, 27601
Telephone: (919) 747-7000

Richard W. Hancock, P.E., Environmental Management Director
North Carolina Department of Transportation
Project Development and Environmental Analysis Unit
1548 Mail Service Center, Raleigh, North Carolina, 27699-1548
Telephone: (919)-707-6000

Table S1: R-3830: Summary of Beneficial & Adverse Environmental Impacts

Environmental Impacts	Units	Proposed Action
Right-of-Way Cost	Dollars	$6,319,629
Utility Relocation Cost	Dollars	$5,878,339
Construction Cost	Dollars	$16,100,000
Total Project Cost	Dollars	$28,297,968
Project Length	Miles	5.4
Residential Relocations	Total	12
Business Relocations	Total	2
Non-Profit Relocations	Total	0
Graves	Total	25
Farm Relocations	Total	0
Total Relocations	Total	14
Potential UST Facilities	Each	13
Hazardous Substance Disposal Sites	Each	1
Landfills	Each	0
Ground Water Incident Site	Each	8
Terrestrial Community Impacts	Acres	28.94
Prime/Statewide Important Farmland	Acres	0
Voluntary Agricultural District (VAD)	Acres	0.18
Stream Crossings	Each	5
Stream Impacts	Linear feet	296.0
Buffer Impacts	Acres	0.00
Wetland Impacts	Acres	0.08
Open Water Impacts	Acres	0.00
Floodplain Impacts	Acres	0.00
Protected Species	Each	0
Noise (0 – 6 dBA)	Impacted Properties	36
Air Quality - Carbon Monoxide Concentration	NAAQS Standard*	In Compliance
Historic Property Impacts	Eligible Properties	1
Archaeological Sites Impacts	Eligible Properties	0
Section 4(f) Resources - Parks, Recreation Areas, Wildlife Management Areas & Historic Properties (De Minimus)	Each	1

* National Ambient Air Quality Standards - Maximum CO permitted per hour average =

35 parts per million (ppm)

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APPENDICES

NC 42-SR 1579 (BROADWAY ROAD) IMPROVEMENTS

NC 42, US 421 (HORNER BOULEVARD) IN SANFORD TO SR 1579 (BROADWAY ROAD) AND SR 1579 (BROADWAY ROAD / NORTH MAIN STREET), NC 42 (AVENTS FERRY ROAD) TO SR 1538 (EAST HARRINGTON AVENUE) IN BROADWAY. WIDEN TO MULTI-LANES.
LEE COUNTY, NORTH CAROLINA
WBS ELEMENT – 38887.1.1 / FEDERAL AID PROJECT NO.: STP-0042(49)

TIP PROJECT NO. R-3830

I. PURPOSE AND NEED

A. General Description of Project

The North Carolina Department of Transportation (NCDOT) proposes to improve NC 42-SR 1579 (Broadway Road), from US 421 (Horner Boulevard) in Sanford to SR 1538 (East Harrington Avenue) in Broadway. R-3830 will widen NC 42-SR 1579 (Broadway Road) to a four-lane curb and gutter, median-divided facility and upgrade the existing two-lane section east of NC 42 (Avents Ferry Road) to a three-lane curb and gutter facility, with a continuous, center turn-lane. Turn-lanes at SR 1523 (Rice Road), SR 1529 (Cox Mill Road) and SR 1579 (Broadway Road) will be added. The existing, five-lane section at the US 421 Bypass interchange will remain. Figure 1 shows the project location, with the R-3830 beginning and ending limits. The project is approximately 5.4 miles in length and is an existing three-lane and two-lane, two-way facility. Figures 2A-D show a preliminary plan of the proposed action.

The R-3830 proposed, project improvements to NC 42-SR 1579 (Broadway Road) are federally funded and are included in the NCDOT 2014-2022 Transportation Improvement Program (TIP). Right-of-way acquisition and construction are scheduled in federal fiscal years 2016 and 2018, respectively. The current total estimated cost of the project is $28,297,968, consisting of $5,878,339 for utility relocation, $6,319,629 for right-of-way acquisition and $16,100,000 for construction.

B. Purpose and Need

The purpose of this project is to improve user safety and traffic operations along NC 42-SR 1579 (Broadway Road), from US 421 (Horner Boulevard) in Sanford to SR 1538 (East Harrington Avenue) in Broadway. The project will reduce the accident potential and improve the LOS along this segment of Broadway Road, in Lee County. The construction of R-3830 will reduce the numerous lane-departure, wet-condition and night-time collisions occurring along this section of NC 42-SR 1579 (Broadway Road) and will mitigate impacts from the truck traffic volume that is expected by the year 2035.

The need for this project is to improve user safety by reducing the crash potential within the project limits, in revising poor intersection alignment, poor intersection sight distances and the lack of turn-lanes at major intersections. Constructing additional lanes, a raised grassed median, wider paved shoulders, new pavement, pavement markings, installing intersection advance warning signs, and reducing traffic congestion will further reduce the types of collisions currently occurring in R-3830 project corridor.

1. Traffic Volumes

Estimated Annual Average Daily Traffic (AADT) volumes were developed for the proposed project, for the design-year 2035. These traffic volumes are shown in Figures 3A-I. The traffic forecast estimated that the 2035 AADT volumes along NC 42-SR 1579 (Broadway Road) will range from 26,400 vehicles per day (vpd), between the US 421 Bypass and the driveway to Coty, Inc., to 7,100 vpd, between SR 1534 (Dalrymple Farm Road) and SR 1535 (Hunter Drive). Three percent to six percent truck traffic is expected to use this facility, in the design year 2035. NC 42-SR 1579 (Broadway Road) is currently a two-lane, two-way roadway and a three-lane, two-way roadway within the project limits, with a short segment of a five-lane, two-way roadway with a continuous, center turn-lane, at the NC 42 (Broadway Road) / US 421 Bypass interchange.

2. Safety

A total of 98 crashes were reported within the project limits, for the five-year period from March 1, 2009, to February 28, 2014. For crash-rate purposes, this roadway section is classified as a rural, two-lane undivided, North Carolina Secondary Route (SR). Tables 1 and 3, show a comparison of crash-rates for the analyzed sections of NC 42 and SR 1579 (Broadway Road), versus the 2009-2011 statewide crash-rates and the calculated critical rate, with a 95% level of confidence for comparable route types and configurations.

Table 1: NC 42 (Broadway Road) Crash Rate Comparisons

Rate	Crashes	Crashes per 100 MVM	Statewide Rate	Critical Rate
Total	**53**	**306.32**	**194.56**	**252.62**
Fatal	0	0.00	1.90	10.24
Non-Fatal Injury	25	144.49	60.43	94.07
Night	16	92.47	73.20	109.93
Wet	**12**	**69.36**	**29.94**	**54.47**

MVM = million vehicle miles

Current NC 42 (Broadway Road) crash-rates exceed the statewide crash-rates and the critical crash-rates, in the total and wet categories. Table 2 categorizes the majority of the project area crashes into four types; rear-end, slow or stop, angle, animal and ran off road-right crashes.

Table 2: NC 42 (Broadway Road) Crash Type Comparisons

Type of Crash	Number of Crashes	Percent of Total
Rear-end, Slow or Stop	17	32%
Angle	15	28%
Animal	3	6%
Ran Off Road - Right	2	4%

The intersection of NC 42 (Broadway Road) with US 421 (Horner Boulevard) had the highest number of crashes of any of the intersections within the project limits. This is due to the higher traffic volume and higher number of motorist conflict points in this area of the project. No crashes within the project limits involved pedestrians during this time period, however adding additional through-lanes and medians along NC 42 (Broadway Road) will provide pedestrian refuge and reduce the potential motorist conflicts with pedestrians and cyclists. Conflicts with cyclists will also be reduced by constructing 14-foot outside travel lanes within the project limits. Additional vehicle conflict points will be reduced through the improvement of poor intersection alignment,

motorist sight distances and the implementation of U-turns at intersections. The high number of rear-end, slow or stop crashes along NC 42 (Broadway Road), should be alleviated with the construction of additional travel lanes, curb and gutter and paved and earthen shoulders throughout the project. The angle crashes, animal-related crashes and ran-off-the-road-right crashes occurring within this portion of the project, should also be reduced by these actions. Businesses along NC 42 (Broadway Road) should do as well or better after the additional lanes and median installation, per recent North Carolina research of the construction of similar improvements, along similar roadways.

Table 3: SR 1579 (Broadway Road) Crash Rate Comparisons

Rate	Crashes	Crashes per 100 MVM	Statewide Rate	Critical Rate
Total	**50**	**196.08**	**362.90**	**426.92**
Fatal	0	0.00	3.13	10.85
Non-Fatal Injury	16	62.74	107.73	143.50
Night	22	86.27	151.35	193.39
Wet	**10**	**39.22**	**55.80**	**82.09**

MVM = million vehicle miles

Current SR 1579 (Broadway Road) crash rates do not exceed the statewide crash-rates or the critical crash-rate, in any category. Table 4 categorizes the majority of the project area crashes into four types; rear-end, slow or stop, fixed object-animal and overturn / rollover crashes.

Table 4: SR 1579 (Broadway Road) Crash Type Comparisons

Type of Crash	Number of Crashes	Percent of Total
Rear-end, Slow or Stop	11	22%
Fixed Object	11	22%
Animal	5	10%
Overturn / Rollover	4	8%

The intersection of SR 1579 (Broadway Road) with Milton Avenue, had the highest number of crashes of any intersection, east of the NC 42 (Avents Ferry Road) intersection. The construction of a center turn-lane in this area of the project, should improve turning movements onto Milton Avenue, where residential neighborhoods and a church are located very near SR 1579 (Broadway Road). This center turn-lane construction should also improve turning movements into the Kangaroo Gas Station and the Road Runner Café, on the west and east corners of the SR 1579 (Broadway Road) intersection with Milton Avenue. The high number of rear-end, slow or stop crashes should be alleviated with the construction of the additional turn-lane and paved and earthen shoulders along SR 1579 (Broadway Road), through the portion of the project east of the NC 42 (Avents Ferry Road) intersection. The angle crashes, animal-related crashes and fixed-object crashes occurring east of the NC 42 (Avents Ferry Road) intersection, should also be reduced by these actions. Conflict points with cyclists will be reduced with the construction of 14-foot outside lanes.

3. Traffic Capacity

Traffic Capacity is defined as the maximum number of vehicles that can be accommodated in reasonable safety, along a roadway within a specific time-period. When traffic volumes approach or exceed the capacity of a roadway, operating levels-of-service (LOS) are diminished, resulting in traffic congestion. Traffic LOS describe the operational conditions of a traffic stream along a roadway in rankings from A to F, with LOS A being the best operational condition and LOS F being the worst

Synchro / SimTraffic Version 7, was the software package used for this capacity analysis.

1) Existing Conditions (Base Year 2011)

Under Base Year 2011 No-Build conditions, all intersections within the project limits operate at acceptable levels of service, LOS D or better, during both AM and PM peak hours.

2) Design Year 2035 No-Build Conditions

Under the Design Year 2035 No-Build conditions, most of the project intersections continue to operate at acceptable levels of service, with slight increases in delay and queuing during both AM and PM peak hours, due to the projected increase in traffic volumes within the project limits.

3) Design Year 2035 Build Conditions

Under the Design Year 2035 Build conditions, the intersections within the project limits are predicted to operate slightly better than the Design Year 2035 No-Build results. This is due to the increased capacity along NC 42-SR 1579 (Broadway Road), resulting from the proposed project widening. The southbound, stop-controlled SR 1595 (Lee Road) approach at NC 42 (Broadway Road) is projected to improve from a LOS F to a LOS B, during both peak-hour periods as a result of the proposed, median-channelization along NC 42 (Broadway Road).

4. Local Transportation and Land Use Plans

Improvements to the NC 42-SR 1579 (Broadway Road) corridor were originally proposed as part of the Lee County Comprehensive Transportation Plan (CTP), completed in 2007 and accepted by NCDOT in 2011. These improvements were later included as a priority (by resolution) by all three jurisdictions, (City of Sanford, Lee County and the Town of Broadway), and endorsed by TARPO in the most recent NCDOT STIP submittals.

The Lee County CTP designated the R-3830 corridor as a "complete street" project, providing for profiles that include curb & gutter, sidewalks and planted medians. Community plans and goals include bicycle amenities within this NC 42-SR 1579 (Broadway Road) corridor.

II. EXISTING CONDITIONS

A. Project Setting

The proposed project along NC 42-SR 1579 (Broadway Road) is located in eastern Lee County, connecting the City of Sanford and the Town of Broadway. Project-area land use varies from urban near Sanford and Broadway, to rural and undeveloped between SR 1529 (Cox Mill Road) and the Broadway town limits. Existing land use in the project study area is more urban in the two municipalities, with a mix of residential, commercial, industrial and civic uses in Sanford, and residential and commercial uses in Broadway. The unincorporated project study areas are more rural, including scattered homes and businesses, undeveloped forested land and farms.

This project is known locally as the, "Main Street / Broadway Road Connector." The R-3830 corridor connects local users with an urbanized area of Sanford, providing access to small and major industrial employers, significant retail activity, fast-food restaurants, churches, a large cemetery, single-family homes, apartments, a large mobile home park, local schools, a veterinary hospital, a

civic center and to Central Carolina Community College. NC 42-SR 1579 (Broadway Road) conveys traffic to US 421 (Horner Boulevard) and to the US 421 Bypass. This corridor also links the Town of Broadway to local business and churches, the US 421 Bypass and to the general Sanford urban area. NC 42 (Broadway Road) serves as a route for emergency providers and is an evacuation route for the Harris Nuclear Facility.

B. Length of Roadway Section Studied

The total length of the project is approximately 5.4 miles. The Federal Highway Administration (FHWA) has determined that the project, as currently proposed, connects logical termini. The project is of sufficient length to address environmental matters on a broad scope, has independent utility and significance, and is a usable and reasonable expenditure, even if no additional transportation improvements are made in the area.

C. Existing Typical Section

NC 42-SR 1579 (Broadway Road) is an existing three-lane and two-lane, two-way facility within the project limits. There is also a short section of five-lane, two-way roadway with a continuous turn-lane, at the intersection of the US 421 Bypass interchange with NC 42 (Broadway Road), just east of the East Lee Middle School on SR 1595 (Rice Road). Paved shoulders will be constructed within the project length.

D. Speed Limits

This section of NC 42-SR 1579 (Broadway Road), posts 35 mph and 45 mph speed limits.

E. Sidewalks

There is sidewalk along the south side of SR 1579 (Broadway Road), from west of Milton Avenue in Broadway to the intersection of SR 1579 (Broadway Road) with West Harrington Road, at project ending terminus in Broadway. No sidewalk exists within the project limits, from the intersection of NC 42 (Broadway Road) with US 421 (Horner Boulevard) in Sanford, to west of the intersection of SR 1579 (Broadway Road) and Milton Avenue in Broadway.

F. Right-of-Way

The existing right-of-way is mostly 60 feet wide, along NC 42-SR 1579 (Broadway Road).

G. Railroad Crossings

An Atlantic & Western Railroad at-grade, industrial spur-line crosses NC 42 (Broadway Road), east of SR 1519 (Nash Street), within the project limits. This same railroad spur line crosses SR 1519 (Nash Street), at-grade, north of NC 42 (Broadway Road). One train per day uses these crossings. Currently, the NC 42 (Broadway Road) railroad crossing has signals, signage, pavement markings, stop bars and automatic gates. The SR 1519 (Nash Street) railroad crossing has signals, signage, pavement markings and stop bars. The roadway widening and resurfacing that will occur at both locations will be coordinated with the Atlantic & Western Railroad.

H. Intersecting Roads

Six intersecting roadways in the project limits are signalized. The remaining intersecting roadways have at-grade, stop-sign controlled intersections with NC 42-SR 1579 (Broadway Road).

I. Structures

There are no bridges or culverts within the project limits.

J. Utilities

Utility impacts within the project limits are expected to be moderate in scope, since some areas of sanitary sewer lines, natural gas lines, water lines, telephone, cable and electric lines exist throughout the project. The utility relocation necessary to construct this project is estimated to cost approximately $5,878,339.

K. Bicycle Routes

There are no bicycle facilities along NC 42-SR 1579 (Broadway Road), in the project area.

L. School Bus Data

Lee County operates 25 bus routes along NC 42-SR 1579 (Broadway Road) twice daily, totaling 50 trips/day. For buses navigating the project during construction, simple lane closures and flagging operations will be acceptable to the Lee County Schools Transportation Director.

M. Navigable Waters

There are no navigable surface waters in the project study area.

N. Airports

The Raleigh Exec Jetport at Sanford-Lee County is located approximately 7 miles northeast of the project beginning limit. Moretz Riverside Landing is located approximately 5 miles northwest of the project beginning limit. Dean Wings Past Airport is located approximately 6 miles southwest of the project beginning limit. Pineview Air Airport is located approximately 8 miles southwest of the project ending limit and William Irving Lewis Airport is located approximately 7 miles south of the project ending limit.

O. Greenways

There are no greenways along NC 42-SR 1579 (Broadway Road), in the project limits.

P. Parks

There is one park along SR 1579 (Broadway Road), within the project limits. Lett Family Park, an 8.6 acre, private facility, operated by the Optimist Club of Broadway, is located at the intersection of SR 1579 (Broadway Road) and SR 1535 (Hunter Drive). Figure 2D shows the Lett Family Park location.

Q. Geo-Environmental Sites

Thirteen locations may contain petroleum underground storage sites (UST), along NC 42-SR 1579 (Broadway Road) within the project limits. One hazardous substance disposal site / superfund site, eight ground water incident sites (GWI) and no apparent landfills were identified within the project limits. Figures 4A-E show the potential UST sites and other geo-environmental site locations. The anticipated geo-environmental impacts to the project from these sites, is low.

R. Flood Hazard Evaluation

Lee County is currently participating in the National Flood Insurance Regulation Program. Consequently, no detailed flood studies have been performed within the project area. There are no major stream crossings or flood zones, within the project limits.

III. ALTERNATIVES CONSIDERED

A. Alternatives Considered For Detailed Study

The alternatives studied for the proposed action include the No-Build Alternative and the Build Alternative. The Build Alternative consists of improving vehicular movement and safety along NC 42-SR 1579 (Broadway Road), by widening the existing roadway to a four-lane curb and gutter, median-divided facility, from US 421 (Horner Boulevard) to NC (Avents Ferry Road) in Sanford, and upgrading the existing two-lane section east of NC 42 (Avents Ferry Road) to a three-lane facility, with a continuous center turn-lane. Turn-lanes at SR 1523 (Rice Road), SR 1529 (Cox Mill Road) and SR 1579 (Broadway Road) will be added. The existing, five-lane section at the US 421 Bypass interchange will remain.

1. No-Build Alternative

The No-Build Alternative offers no improvements to NC 42-SR 1579 (Broadway Road) within the project limits. It assumes that all other projects currently planned or programmed in the NCDOT TIP will be constructed in the project vicinity, as proposed. Continued roadway maintenance and minor improvements along NC 42-SR 1579 (Broadway Road) are a part of this concept. The No-Build Alternative does not increase the traffic carrying capacity along this section of NC 42-SR 1579 (Broadway Road), reduce traffic congestion or improve vehicular safety and traffic operations along this section of NC 42-SR 1579 (Broadway Road). Since the No-Build Alternative does not address the purpose and need of the proposed action, it is not recommended.

2. Build Alternative

The Build Alternative proposes to improve NC 42-SR 1579 (Broadway Road), from US 421 (Horner Boulevard) in Sanford to SR 1538 (East Harrington Avenue) in Broadway. R-3830 will widen NC 42 (Broadway Road) to a four-lane, median-divided facility and will upgrade the existing two-lane section east of NC 42 (Avents Ferry Road) to a three-lane facility, with a continuous, center turn-lane. Turn-lanes at SR 1523 (Rice Road), SR 1529 (Cox Mill Road) and SR 1579 (Broadway Road) will be added. The existing five-lane section in the US 421 Bypass interchange will remain.

Adding additional through-lanes and medians along NC 42 (Broadway Road) will provide pedestrian refuge and reduce the potential motorist conflicts with pedestrians and cyclists. Conflicts with cyclists will also be reduced by constructing 14-foot outside travel lanes within the project limits. Additional vehicle conflict points will be reduced through the improvement of poor intersection alignment, motorist sight distances and the implementation of U-turns at intersections. The high number of rear-end, slow or stop crashes along NC 42 (Broadway Road), should be alleviated with the construction of additional travel lanes, curb and gutter and paved and earthen shoulders throughout the project. The angle crashes, animal-related crashes and ran-off-the-road-right crashes occurring within this portion of the project, should also be reduced by these actions. Businesses along NC 42 (Broadway Road) should do as well or better after the additional lanes and

median installation, per recent North Carolina research of the construction of similar improvements, along similar roadways.

The high number of rear-end, slow or stop crashes should be alleviated with the construction of the additional turn-lane and paved and earthen shoulders along SR 1579 (Broadway Road), through the portion of the project east of the NC 42 (Avents Ferry Road) intersection. The angle crashes, animal-related crashes and fixed-object crashes occurring east of the NC 42 (Avents Ferry Road) intersection, should also be reduced by these actions. Conflict points with cyclists will be reduced with the construction of 14-foot outside lanes.

The proposed four-lane, median-divided (variable-width) section of NC 42 (Broadway Road) will include 2.5-foot wide curb and gutter and a five-foot wide sidewalk, contained inside a 10-foot wide graded berm on the north side of Broadway Road, from the project beginning to Thornwood Loop. The proposed three-lane section of SR 1579 (Broadway Road) will include 2-foot wide curb and gutter and a five-foot wide sidewalk, contained inside 10-foot wide graded berm, on the north side of Broadway Road from Gilbert Lett Drive to the existing sidewalk west of Milton Avenue. No new traffic signals are warranted for the proposed roadway improvements. The length of these proposed improvements along NC 42-SR 1579 (Broadway Road), is approximately 5.4 miles. The existing railroad crossing will be expanded in coordination with the Atlantic and Western Railroad. The proposed build alternative was presented to local citizens during a Citizens Informational Workshop (CIW), held in the East Lee Middle School on October 11, 2011.

IV. PROPOSED IMPROVEMENTS

A. Length of the Proposed Project

The total length of the proposed project is approximately 5.4 miles.

B. Typical Section Descriptions

The proposed action improves NC 42 (Broadway Road) from a two-lane, two-way facility to a four-lane median-divided, two-way facility and improves SR 1579 (Broadway Road) from a two-lane, two-way facility to a three-lane, two-way facility, with standard 12-foot inside lanes widths and 14-foot, outside lane widths. The grassed median in the proposed four-lane section will be 23 feet wide, except in the vicinity of Shallow Well Baptist Church. In that location, the proposed median will be 17.5 feet wide to reduce the number of grave relocation impacts to the church cemeteries along both sides of NC 42 (Broadway Road). The project will also construct 2-foot curb-and-gutter along NC 42 and SR 1579 (Broadway Road). Shoulder sections will be constructed along the -Y-lines, within the project limits. The typical sections for the proposed action are in Figure 5.

C. Proposed Right-of-Way

The proposed right-of-way along NC 42-SR 1579 (Broadway Road) within the project limits, will be vary from approximately 185 feet wide to 80 feet wide. The proposed right-of-way for the 23-foot wide, median typical-section will be 120 feet wide. The proposed right-of-way for the 17.5-foot wide, median typical-section will be 100 feet wide through the Shallow Well Baptist Church cemeteries. Near East Lee Middle School and SR 1595 (Rice Road), the approximate, proposed right-of-way will be 185 feet wide. The proposed three-lane typical section along SR 1579

(Broadway Road) from NC 42 (Avents Ferry Road) to the existing three-lane section between Johnson Street and Milton Avenue, will be 80 feet wide.

D. Access Control

No control-of-access is planned along the proposed action.

E. Intersection Treatment and Type of Control

At-grade, stop-sign controlled intersections will continue to be used throughout the proposed project. The three existing traffic signal controlled intersections will be upgraded to accommodate additional travel lanes. No additional existing intersections are proposed to be signalized by this project. The intersections of NC 42-SR 1579 (Broadway Road) with SR 1523 (Rice Road), SR 1529 (Cox Mill Road) and NC 42 (Avents Ferry Road) will include proposed turn lanes and will be realigned for improved sight distances and vehicular safety. The intersection of SR 1535 (Hunter Drive) and NC 42-SR 1579 (Broadway Road), will also be realigned for improved sight distances and vehicular safety.

F. Speed Limit and Design Speed

The likely proposed posted speed limits along NC 42-SR 1579 (Broadway Road) will be 35 mph in the more urban areas of Sanford and Broadway, and 45 mph in the more rural area between Sanford and Broadway. The design speed is 50 miles-per-hour. The Regional Traffic Engineer will make recommendations for the posted speed limits, further into the roadway design process.

G. Noise Barriers

No noise barriers are proposed as part of this project.

H. Sidewalks

Sidewalks will be constructed along the north side of NC 42 (Broadway Road), from the project beginning at US 421 (South Horner Boulevard) to Thornwood Loop, east of East Lee Middle School in Sanford, and along the north side of SR 1579 (Broadway Road), from Gilbert Lett Drive to the existing sidewalk west of Milton Avenue, in Broadway.

I. Bicycle Accommodations

Fourteen-foot wide outside lanes will be constructed for bicycle use, in the proposed action. The Lee County Comprehensive Transportation Plan (CTP) designated the NC 42-SR 1579 (Broadway Road) corridor as a "Complete Street" project that includes curb & gutter, wider outside, shared travel lanes for bicycle traffic, sidewalks and planted medians. The Triangle Area Rural Planning Organization (RPO) favors 14-foot wide travel lanes in the proposed, three-lane typical section and in the outside travel lanes of the four-lane, median-divided typical section, with "Share the Road" signing, and sidewalks in areas of existing pedestrian usage.

J. Structures

No improvements are proposed, since there are no bridges or culverts within the project limits.

K. Greenways

There are no existing or proposed greenways along NC 42-SR 1579 (Broadway Road), within the project limits.

L. Right-of-Way Cost

The right-of-way cost is based on the preliminary design of the proposed action. Right-of-way costs includes: land and damage, utilities and acquisitions. The estimated right-of-way cost for the proposed action is $6,319,629. Table 5 shows the right-of-way cost, construction cost and total cost of the proposed project.

M. Construction Cost

The construction cost is based on the preliminary design of the proposed action. The construction cost estimate includes items such as clearing and grubbing, earthwork, drainage, and paving. The estimated construction cost for the proposed action is $16,100,000. Table 5 shows the utility relocation cost, right-of-way cost, and total cost of the proposed project.

N. Total Cost

The total cost of the proposed action is $28,297,968. Table 5 summarizes the right-of-way, construction and total costs of the project.

Table 5: Cost Summary

Cost Item	Proposed Action
Construction Cost	$16,100,000
Utility Relocation Cost	$5,878,339
Right-of-Way Cost	$6,319,629
Total Cost	$28,297,968

V. ENVIRONMENTAL EFFECTS

A. Social and Economic Effects

1. Land Use

The proposed project improvements along NC 42-SR 1579 (Broadway Road) are located in eastern Lee County, connecting the City of Sanford and the Town of Broadway. Project-area land use varies from urban near Sanford and Broadway, to rural and undeveloped between SR 1529 (Cox Mill Road) and the Broadway town limits. Existing land use in the project study area is more urban in the two municipalities, with a mix of residential, commercial, industrial and civic uses in Sanford, and residential and commercial uses in Broadway. The unincorporated project study areas are more rural, including forested land and farms.

2. Community Profile

a. Direct Community Impact Area (DCIA)

The Direct Community Impact Area (DCIA) is the area surrounding a project that will likely be affected during project construction and after project completion. The R-3830 DCIA shown in Figure 6, extends from the intersection of US 421 (Horner Boulevard) with NC 42 (Broadway Road) in Sanford, to the SR 1538 (East Harrington Avenue) and SR 1579 (Broadway Road) intersection in Broadway. The DCIA chosen for this project, encompasses all of the parcels immediately adjacent to NC 42-SR 1579 (Broadway Road) inside the project limits, as well as the

parcels within 1,000 feet of any project intersections. In some areas, the DCIA boundary is extended to include large, undeveloped parcels and important community resources.

b. Demographic Study Area (DSA)

The Demographic Study Area (DSA) is an area covered by the smallest number of Block Groups, that completely contains the Direct Community Impact Area. The census geographies for this project, as determined by the 2010 US Census, include Census Tract 304.1 - Block Groups 1, 2 and 3, Census Tract 304.2 - Block Group 2, and Census Tract 307.2 – Block Groups 1, 2 and 3.

c. Community Characteristics

The project study area is more urban in the two municipalities, with a mix of residential, commercial, industrial and civic uses in Sanford, and residential and commercial uses in Broadway. The unincorporated project areas are more rural, including forested land and farms.

d. Population Characteristics

According to the 2010 US Census, the population with in the DSA was 10,015, as shown in Table 6. This number represented a 9.11% (836 people) increase in population from 9,179 people in 2000. This compares to a 18.0% increase in population in Lee County, during the same period. The population increases were not consistent across the demographic area. Census Tract 304.1, Block Group 2, located between the US 421 Bypass and NC 42 (Avents Ferry Road), experienced an increase of 33.48% or 337 people, during this time. Block Group 3 in Census Tract 307.2, south of NC 42 (Avents Ferry Road) and the Town of Broadway, experienced a 31.38% increase in population or 326 people, during the same time period.

Table 6: Population Change, 2000 – 2010 Source: 2000 & 2010 US Census Data: SF1 Tables P001 & P1.

Geography 2000	Geography 2010	2000	2010	% Change
Census Tract 304, Block Group 3*	Census Tract 304.01, Block Group 1*	597	1,537	157.5%*
Census Tract 304, Block Group 1*	Census Tract 304.01, Block Group 2*	1,114	1,487	33.5%*
Census Tract 304, Block Group 4*	Census Tract 304.01, Block Group 3*	1,291	1,149	-11%*
Census Tract 304, Block Group 5*	Census Tract 304.02, Block Group 2*	1,440	1,512	5%*
Census Tract 307, Block Group 3*	Census Tract 307.02, Block Group 1*	1,708	1,882	10.2%*
Census Tract 307, Block Group 4	Census Tract 307.02, Block Group 2	1,051	1,083	3%
Census Tract 307, Block Group 5	Census Tract 307.02, Block Group 3	1,039	1,365	31.4%
Community Study Area (CSA) block groups Aggregate		**8,240**	**10,015**	**21.5%**
Lee County		49,040	56,787	15.8%
North Carolina		8,049,313	9,535,483	18.5%

* Notes a Block Group boundary change from 2000 to 2010.

e. Race and Ethnicity

In the DSA during the 2010 Census, 60.7% of the population identified themselves as White and 22.2% identified themselves as Black or African-American. The demographic area has a somewhat lower percentage of a White population and a slightly higher percentage of a Black or African-American population, than does Lee County (66.86% White and 19.99% Black or African-American), as shown in Table 7. According to the 2010 census, 25.64% of the population, or 2,568 people living in the DSA, identified themselves as Hispanic or Latino. This group percentage is higher than the Lee County Hispanic or Latino group percentage of 18.28%.

Table 7: Race and Ethnicity

Geography	Total Population	White	Black	American Indian	Asian	Some Other Race	Two or More Races
Tract 304.01, BG 1	1,780	953	533	26	0	251	17
		53.5%	29.9%	1.5%	0.0%	14.1%	1.0%
Tract 304.01 BG 2	1,111	423	286	0	0	402	0
		38.1%	25.7%	0.0%	0.0%	36.2%	0.0%
Tract 304.01 BG 3	972	284	362	0	0	326	0
		29.2%	37.2%	0.0%	0.0%	33.5%	0.0%
Tract 304.02 BG 2	1,425	377	765	0	0	231	52
		26.5%	53.7%	0.0%	0.0%	16.2%	3.6%
Tract 307.02 BG 1	2,492	1,961	233	0	0	154	144
		78.7%	9.3%	0.0%	0.0%	6.2%	5.8%
Tract 307.02 BG 2	1,197	1,008	39	28	2	77	62
		84.2%	3.3%	2.3%	0.2%	6.4%	5.72%
Tract 307.02 BG 3	848	670	29	0	33	46	70
		79.0%	3.4%	0.0%	3.9%	5.4%	8.3%
CSA Block Groups	**9,825**	**5,676**	**2,247**	**54**	**35**	**1487**	**326**
		57.8%	**22.9%**	**0.5%**	**0.4%**	**15.1%**	**3.3%**
Lee County	56,787	37,358	11,331	306	617	5,979	1,196
		65.8%	20.0%	0.5%	1.1%	10.5%	2.1%

Source: US Census Bureau, American Community Survey, 5-year Estimates (2007-2011), Table B02001, "Race."

The percentage of the population that identified themselves as Non-White, varies from 0.1% to 74.4% among the seven, project-area census track block groups. Five project-area block groups have minority population percentages that are higher than the Lee County percentages, for the same categories. Four CSA block groups meet both Environmental Justice (EJ) thresholds, with greater than 50 percent minority population totals and more than 10 percent points higher than the county average. All of these block groups are located in the Sanford vicinity.

Census Tract 304.01, Block Group 1 – 60.8%
Census Tract 304.01, Block Group 2 – 66.9%
Census Tract 304.01, Block Group 3 – 86.2%
Census Tract 304.02, Block Group 2 – 76.2%

f. Income / Poverty Status

According to the 2007-2011 Census Estimates, 17.1% of the population within the project DSA has incomes below the poverty level, as shown in Table 8. The proportion of the population with incomes below the poverty level, varies across the demographic area.

Table 8: Income / Poverty Status

2007-2011 Census Geographies	Poverty Status Population	Population Below Poverty Level	Percent Population Below Poverty Level
Census Tract 304.01, Block Group 1	1,777	617	34.7%
Census Tract 304.01, Block Group 2	1,111	611	55.0%
Census Tract 304.01, Block Group 3	972	268	27.6%
Census Tract 304.02, Block Group 2	1,416	323	22.8%
Census Tract 307.02, Block Group 1	2,492	424	17.0%
Census Tract 307.02, Block Group 2	1,197	136	11.4%
Census Tract 307.02, Block Group 3	848	122	14.4%
DSA Block Groups	**9,813**	**2,501**	**25.5%**
Lee County	55,956	9,419	16.8%

Source: US Census Bureau, American Community Survey 5-year Estimates (2007-2011), Table C17002.

g. Community Resources - Facilities and Businesses

Fourteen community facilities and 6 of the top 25 employers in Lee County are located in the Direct Community Impact Area (DCIA). The community facilities include Central Carolina Community College, Lee County High School, East Lee Middle School, Cape Fear Rural Volunteer Fire Department, a civic center, a community building, a private park and several places of worship.

h. Transit

There are no fixed-route transit systems provided inside the project limits, by Sanford or Broadway. *The County of Lee Transit System* (COLTS) operates paratransit vans and one fixed-route bus along general established routes in Lee County, with some route deviation for the general public and human service agencies on a requested or scheduled basis. Customers of human service agencies that contract with COLTS, can arrange for rides to work, to medical appointments and to Central Carolina Community College. Likewise, the general public can also arrange for rides. COLTS operates 18 vans and one small bus, according to Sidney Morgan, the Lee County Transportation Coordinator. COLTS vehicles frequently use Broadway Road to transport area residents to three major employers: Coty, Inc., Moen and Tyson Chicken and generated 66,658 trips in 2012. The *Lee County Comprehensive Transportation Plan* does not include plans for public transportation or rail improvements.

COLTS operates one fixed-route loop, DASH, that travels along SR 1519 (Nash Street) in the DCIA, connecting passengers to Central Carolina Community College and to downtown Sanford. The DASH route operates six trips per day.

i. Community Safety and Emergency Response

Emergency Response Services in the project limits are provided by Lee County. These response times would be improved, due to enhanced mobility along the facility, post-construction. Emergency response times could slow during construction, due to potential lanes closures or detours. Improved mobility will support the ability of NC 42 (Broadway Road) to serve as an evacuation route for the Harris Nuclear facility. The project would not affect personal safety or crime in the CSA.

3. Analysis of Community Impacts

The proposed improvements along this section of NC 42-SR 1579 (Broadway Road) are likely to have minor impacts on the surrounding community and the community quality of life.

a. Physical, Social and Psychological Aspects

The Direct Community Impact Area (DCIA) is the area surrounding a roadway project that is likely to be directly affected in any way, prior to, during or after construction. The R-3830 DICA is located in Lee County, North Carolina, within the city limits of Sanford and the town limits of Broadway. Land use in the beginning of the project includes a mixture of commercial uses, industrial uses and scattered residences. Between the intersections of SR 1520 (Rosser Road) and the US 421 Bypass, land use along NC 42 (Broadway Road) becomes more rural in nature, including residences and churches. Between SR 1523 (Rice Road) and SR 1529 (Cox Mill Road), the land use becomes more industrial, although is still moderately residential. East of Green Meadow Drive and further east to Dalrymple Road, land use along SR 1579 (Broadway Road) returns to a rural character, with large undeveloped and forested parcels, farms and farm residences. Just west of NC 42 (Avents Ferry Road), is a farm participating in the Lee County Volunteer Agricultural District Program (VAD). The right-of-way required from this VAD is minimal, 0.18 acres, and will not

impact any current agricultural operations. Between Dalrymple Road and the project ending terminus at SR 1538 (East Harrington Avenue), the land use becomes more dense and includes several residential neighborhoods. The project area contains the Lett Family Park, along SR 1579 (Broadway Road) just east of Broadway, which is not a 4(f) resource, since it is owned and operated by the local Optimist Club. The Broadway Community Center is located along SR 1579 (Broadway Road) in Broadway. No right-of-way will be needed from this property, since SR 1579 (Broadway Road) is currently a three-lane section in that location. The proposed project will not affect the functioning of the DCIA or alter interactions between local individuals or groups, or change the physical composition of the local area.

NC 42-SR 1579 (Broadway Road) currently acts as a physical barrier between the residences on the north side of the roadway and those on the south side. The proposed widening of the existing lanes along NC 42-SR 1579 (Broadway Road), including turn-lanes at SR 1523 (Rice Road), SR 1529 (Cox Mill Road) and SR 1579 (Broadway Road) will improve motorists' safety and will reduce collisions associated with lane-departure, wet-condition and night-time collisions. The project will not impact traffic capacity, notably reduce local travel time, significantly alter local traffic patterns, affect community cohesion, access or exposure of adjacent parcels, or create new transportation or land-use nodes, along this section of NC 42-SR 1579 (Broadway Road).

b. Visual / Aesthetic Impacts

The proposed action should have little effect on the aesthetics of the project area. The project improvements will only impact the aesthetic qualities of individual properties, where minimal vegetation is to be removed.

c. Economic Conditions

Access to some businesses may be impeded due to the construction of medians; however the associated impacts are expected to be minimal.

d. Mobility

Mobility is defined as the ability to move from one place to another or the potential for that movement. The project should improve overall mobility for motorists traveling to and through the project area, along NC 42-SR 1579 (Broadway Road). The construction of R-3830 should also improve overall mobility and safety for school buses using this corridor.

e. Community Safety and Emergency Response

The construction of the R-3830 roadway improvements should increase driver safety in the project area by reducing the potential for lane-departure, wet-condition and night-time collisions, due to widening the existing lanes, constructing curb and gutter sections and constructing paved and earthen shoulders sections, within the project limits.

Emergency Response Services from Lee County have indicated that the construction of the roadway and operational improvements along this section of NC 42-SR 1579 (Broadway Road) will not disrupt response times, if timely notification is received by the NCDOT prior to construction. This will allow these responders to determine alternate routes for all safety vehicles in the area. After construction, the project should have no adverse impact on emergency response.

f. Environmental Justice (EJ)

While minority and low-income communities are present in the DSA, no notably adverse community impacts are anticipated with the construction of this project; thus impacts to minority and low-income populations do not appear to be disproportionately high or adverse. Benefits and burdens resulting from the project improvements are anticipated to be equitably distributed throughout the local community.

g. Limited English Proficiency (LEP)

The presence of LEP populations was confirmed in discussions with local officials, during site visits and interviews conducted in association with the Citizens Informational Workshop held in October 2011, and during the preparation of the project CIA, in March 2014.

h. Future Land Use Effects

No future land use effects are expected as a result of this project. The roadway safety and operational improvements will result in improved conditions for existing commuters, but will not affect semi-regional commuting patterns.

i. Indirect and Cumulative Impacts

Based on the results of the Indirect Effects Screening Matrix, a Land Use Scenario Assessment is not warranted. The identified project improvements, a proposed four-lane cross-section for NC 42 (Broadway Road) from US 421 (South Horner Boulevard) eastward to NC 42 (Avents Ferry Road), and a three-lane cross-section from NC 42 (Avents Ferry Road) eastward to SR 1538 (East Harrington Avenue), should not notably affect any environmental resources within the project FLUSA. Furthermore, any potential land use effects are tempered by the fact that the project does not provide any new access to land and creates minimal travel-time savings. Since minimal indirect impacts are anticipated, the combination of the proposed R-3830 roadway improvements and other notable past, present and future public/private actions within and surrounding the FLUSA, should result in minimal cumulative effects to notable human and natural features.

j. Relocation Impacts

The proposed action should displace 12 residences, 2 businesses, 25 graves and no farms or non-profit organizations, within the project limits. Table 9 shows a summary of the relocation impacts associated with the proposed action. (See Appendix 1 for the relocation report.)

Table 9: Relocation Impact Summary

Relocation		Build Alternative
Residences	Owners	**8**
	Tenants	**4**
	Total	**12**
	Minority	**1**
Businesses	Owners	**2**
	Tenants	**0**
	Total	**2**
	Minority	**0**
Graves		**25**
Farms		**0**
Non-Profit Organizations		**0**

k. Cultural Resources

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, and implemented by the Advisory Council on Historic Preservation Regulations for compliance with Section 106, for a licensed or permitted project that has an effect on a property listed on or eligible for listing in the National Register of Historic Places (NRHP).

1). Historic Architectural Resources

A Historic Preservation Office (HPO) GIS search revealed that there were 13 known structures of historical or architectural importance within the proposed area of potential effect. Surveys and evaluations of any structures over fifty years old, within the project area, were recommended by the HPO.

The initial, project field survey conducted in 2012, identified 62 properties and one historic district, with buildings greater than fifty years of age. These findings were presented to the HPO in September 2012, where further information concerning one property and the historic district was requested. The other 61 properties investigated, were deemed not eligible for listing in the NRHP. (See Appendix 1). The historic resources within the R-3830 proposed area of potential effect are listed in Table 10.

With a temporary construction easement within the permanent utility easement, there will be No Adverse Effect to the historic Sloan House property, provided an appropriate landscape plan of low ornamental plantings is executed in the utility easement and behind it, if the property owner is amenable. (Appendix 1: Concurrence Form for Assessment of Effects)

Table 10: Historic Architectural Resources

Historic Resource	National Register Status	Effect
Sloan House	Determined Eligible, Criterion C	No Adverse Effect, with Environmental Commitment
Broadway Historic District	Determined Eligible, Criteria A & C	No Effect

2). Archaeological Resources

In correspondence dated March 8, 2011, the HPO recommended that no archaeological investigation be conducted in connection with this project. A copy of this letter is included in Appendix 1.

4. Section 4(f) Resources

Section 4(f) of the Department of Transportation Act of 1966 protects the use and function of publicly-owned parks, recreation areas, wildlife/waterfowl refuges and historic properties. A transportation project can only use land from a 4(f) resource when there are no other feasible or prudent alternatives to doing so, and when the project includes all possible planning actions to minimize harm to the affected resource. FHWA will use the SHPO concurrence as a basis for a "de minimus" finding for the historic Sloan House property (LE0587), pursuant to Section 4(f).

There will be no Section 4(f) impacts to the Lett Family Park, since this is a privately owned and operated park within the limits of this project. The small amount of right-of-way that will be purchased from this property, will not affect the recreational activities or the existing facilities of the Lett Family Park.

5. Section 6(f) Resources

The project area does not contain recreational resources funded by the Land and Water Conservation Fund; therefore no Section 6(f) resources are located within the project limits.

B. Farmland Impacts

North Carolina Executive Order Number 96, *Preservation of Prime Agricultural and Forest Lands*, requires all state agencies to consider the impact of land acquisition and construction projects on prime farmland soils, as designated by the U.S. Natural Resources Conservation Service (NRCS). These soils are determined by the Soil Conservation Service (SCS), based on criteria such as crop yield and level-of-input of economic resources.

The project is located in eastern Lee County and is surrounded by a mixture of farmland, small businesses and low-density residential land uses. Land use in Sanford is a mix of commercial, industrial and residential, while in Broadway, the land use is more rural with farms and farm residences, as well as single-family residential neighborhoods closer to downtown Broadway. Minor farmland impacts are expected in the project area, due to right-of-way acquisition necessary to construct the project roadway improvements. Although minimal displacement of farmland is anticipated, these farming operations may face conversion to higher intensity uses due to improved mobility along the NC 42-SR 1579 (Broadway Road) corridor, resulting from the project.

Four Voluntary Agricultural Districts (VAD) exist within the R-3830 Community Study Area (CSA). One of these VAD is along NC 42 (Broadway Road), just west of the intersection of NC 42 and SR 1579 (Broadway Road). The 0.18 acres of right-of-way required from this VAD is minimal and will not impact any current agricultural operations.

C. Natural Environment Effects

Biologists evaluated the natural systems and conducted field work in the project area, during two field trips from February through March 2012. Jurisdictional areas identified in the project study area were verified by the U.S. Army Corps of Engineers (USACE) and by the North Carolina Division of Water Quality (NCDWQ), on July 24, 2012.

The area surrounding this section of NC 42-SR 1579 (Broadway Road) is located in an urban to rural setting, in Lee County. The study area lies in the piedmont physiographic region of North Carolina. Topography in the project vicinity is comprised of rolling hills, with moderately steep slopes along the main drainage ways. (Figure 7) Elevations in the project study area range from 400 to 450 feet above sea level. Land use in the project vicinity consists primarily of forested areas, agricultural fields, residential houses and commercial developments.

1. Soils

The Lee County Soil Survey identifies eleven soil types within the project study area. These soils types are summarized in Table 11.

Table 11: Soils in the Study Area

Soil Series	Mapping Unit	Drainage Class	Hydric Status
Cecil fine sandy loam	CfD	Well Drained	Non-hydric
Dothan loamy sand	DoA	Well Drained	Hydric*
Durham loamy sand	DuB	Well Drained	Non-hydric
Fuquay loamy sand	FuB	Well Drained	Non-hydric
Gilead loamy sand, 2-8% slopes	GhB	Moderately Well Drained	Hydric*
Gilead loamy sand, 8-15% slopes	GhD	Moderately Well Drained	Hydric*
Pacolet fine sandy loam	PaF	Well Drained	Non-hydric
Roanoke silt loam	Ro	Poorly Drained	Hydric
Urban land	Ur	N/A	N/A
Vaucluse gravelly sandy loam	VaD	Well Drained	Hydric*
Wehadkee fine sandy loam	Wn	Poorly Drained	Hydric

*Soils which are primarily non-hydric, but which may contain hydric inclusions

2. Water Resources

Water resources in the study area are part of the Cape Fear River Basin [U.S. Geological Survey (USGS) Hydrologic Unit 03030003]. Five streams were identified in the study area, as listed in Table 12. The location of each water resource is shown in Figures 8A-C. The physical characteristics of these streams are provided in Table 13.

Table 12: Water Resources in the Study Area

Stream Name	Map ID	NCDWQ Index Number	Best Usage Classification
Patchet Creek	Patchet Creek	18-20-9	C
UT to Patchet Creek	SAA	18-20-9	C
UT to Patchet Creek	SB	18-20-9	C
UT to Patchet Creek	SC	18-20-9	C
UT to Patchet Creek	SD	18-20-9	C

Table 13: Physical Characteristics of Water Resources in the Study Area.

Map ID	Bank Height (ft)	Bankful Width (ft)	Water Depth (in)	Channel Substrate	Velocity	Clarity
Pachet Creek	3	5	12	Sa, Gr, Co	Moderate	Clear
SAA	3	1	4	Si, Sa, Co	Moderate	Clear
SB	2	3	6	Si, Sa, Co	Slow	Clear
SC	2	4	12	Sa	Slow	Clear
SD	2	4	12	Si, Sa	Slow	Clear

*Si-Silt, Sa-Sand, Gr-Gravel, Co-Cobble

Two ponds are located in the study area, PA and PC (Figures 8C and 8D). PA and PC consist of artificially excavated pits that are sustained by high groundwater levels. Approximately 0.3 acres of PA and 0.5 acres of PC are located inside the project study area. These ponds have no surface water connection to any project jurisdictional stream features.

There are no anadromous fish waters or Primary Nursery Areas (PNA) present in the project study area. No designated High Quality Waters (HQW), Outstanding Resource Waters (ORW), trout waters or water supply watersheds (WS-I or WS-II) are within 1.0 mile downstream of the study area. No streams within the project study area or within 1.0 mile downstream of the study area are identified in the North Carolina 2012 Final 303(d) list of impaired waters. No benthic or fish monitoring data is available for any streams in the study area or within 1.0 mile of the project study area.

3. Biotic Resources

a. Terrestrial Communities

Five terrestrial communities were identified in the project study area. These communities were identified as Maintained/Disturbed, Piedmont/Mountain Bottomland Forest, Mesic Mixed Hardwood Forest, Piedmont/Mountain Semi-permanent Impoundment and Piedmont/Mountain Swamp Forest. Figures 8A-C show the location and extent of these terrestrial communities, in the study area. A brief description of each community type follows. Scientific names of all species identified are included in Appendix 2.

1.) Maintained / Disturbed

Maintained/Disturbed communities comprise the majority of the study area in places where the vegetation is periodically mowed, such as roadside shoulders, residential lawns, utility right-of-ways, agricultural fields and commercial developments. The vegetation in this community includes scattered trees such as sweetgum, Russian olive, Chinese privet and loblolly pine. Low-growing grasses and herbs present in these areas include fescue, broomsedge, goldenrod, rice cutgrass, Japanese silt grass, ebony spleenwort and blackberry. Vines present include Japanese honeysuckle, grapevine and common greenbrier. Also present in this community, are wetland areas classified as Non-Tidal Freshwater Marsh and Headwater Forest, using the NCWAM classification.

2.) Piedmont / Mountain Bottomland Hardwood Forest

The Piedmont/Mountain Bottomland Hardwood Forest communities occur along floodplains of Patchet Creek and its tributaries, where periodic overbank flooding occurs. Loblolly pine, tulip poplar, black gum, red maple, and sweetgum dominate the canopy, while American hornbeam, giant cane, wax myrtle and Chinese privet dominate the under-story. This community has a well-developed herbaceous layer, including seedbox, American pokeweed, southern lady fern, dogfennel, cattail, goldenrod, Japanese stilt grass, smartweed and blackberry. Vines in this community include laurel greenbrier, common greenbrier, poison ivy and grapevine. Wetlands in this community are classified as headwater forest and bottomland hardwood forest, using the NCWAM classification.

3.) Mesic Mixed Hardwood Forest (Piedmont Subtype)

The Mesic Mixed Hardwood Forest community type is present along NC 42-SR 1579 (Broadway Road) in the dry, upland areas, with higher elevations and steeper gradients. Dominant species in this community include loblolly pine, tulip poplar and red maple in the overstory and American beech, red maple and highbush blueberry in the shrub layer. The herbaceous layer was absent, due to the heavy shade. Included in this community, is one wetland area which is classified as headwater forest, using the NCWAM classification.

4.) Piedmont / Mountain Semi-permanent Impoundment

The Piedmont/Mountain Semi-permanent Impoundment community type occurs within the project study area, in a low lying site that has been impounded by the Broadway Road crossing. Canopy and shrub species present in the community type include red maple, tulip poplar, black willow, black gum, loblolly pine, paw-paw, red chokeberry and giant cane. The understory layer is generally sparse, with tag elder present on the edges of the impoundment. Vegetation in this area is predominately herbaceous, and includes Japanese stilt grass, small spike false nettle, netted chain fern, tearthumb and blackberry. Vines observed in this community include laurel greenbrier, common greenbrier and grapevine. The wetland present in this community is classified as riverine swamp forest, using the NCWAM classification.

5.) Piedmont / Mountain Swamp Forest

The Piedmont/Mountain Swamp Forest community is situated along Patchet Creek in the lowest part of the floodplain. This community appears to be frequently flooded. Dominant species in this community include black gum and red maple in both the canopy and the understory. The herbaceous layer includes Japanese stilt grass, tearthumb and small spike false nettle. The wetland areas in this community are classified as riverine swamp forest, using the NCWAM classification.

6.) Terrestrial Community Impacts

Terrestrial communities in the study area may be impacted by project construction, as a result of grading and paving portions of the study area. Terrestrial community total coverage and project impacts are presented in Table 14.

Table 14: Terrestrial Community Coverage in the Study Area

Community	Coverage (ac)	Project Impacts (ac)
Maintained / Disturbed	290.3	**24.32**
Piedmont / Mountain Bottomland Hardwood Forest	9.5	**1.58**
Mesic Mixed Hardwood Forest (Piedmont Subtype)	42.4	**2.54**
Piedmont / Mountain Semi-Permanent Impoundment	1.2	**0.18**
Piedmont / Mountain Swamp Forest	3.2	**0.32**
Total	346.6	**28.94**

a. Terrestrial Wildlife

Terrestrial communities in the study area are comprised of both natural and disturbed habitats that may support a diversity of wildlife species. *Those species actually observed are indicated with an* *. Mammal species that commonly exploit forested habitats and stream corridors found within the project study area, include eastern chipmunk, common mouse, gray squirrel*, eastern cottontail*, raccoon, Virginia opossum, coyote and white-tailed deer*. Birds that commonly use forest and forest-edge habitats include the red-shouldered hawk*, American crow*, eastern meadowlark, yellow-bellied sapsucker, pileated woodpecker*, Carolina chickadee and tufted titmouse. Avian species that may use the open habitat or water resources within the project study area include, Canada goose*, American kestrel, eastern bluebird, great blue heron, and turkey vulture. Reptile and amphibian species that may use terrestrial communities located in the project study area include the corn snake, black rat snake, black racer, eastern box turtle, snapping turtle, American toad*, eastern fence lizard and five-lined skink.

b. Aquatic Communities

Aquatic communities in the study area consist of perennial and intermittent piedmont streams, as well as still water ponds. The perennial streams could support shiners, sunfish and various benthic macroinvertebrates, including mayflies, stoneflies and caddiflies. The intermittent streams are relatively small in size and would support aquatic communities of spring peeper, crayfish and various benthic macroinvertebrates, including dobsonflies. Pond habitats could support bluegill, channel catfish, spring peeper, American toad and banded water snake.

c. Invasive Species

Four species on the *NCDOT Invasive Exotic Plant List for North Carolina* were found to occur in the study area. The threat species identified were Chinese privet and Japanese stilt grass. The moderate threat species found was Japanese honeysuckle. Russian olive, from the watch list, was also identified. The NCDOT will manage invasive plant species on department right-of-way, as appropriate.

4. Jurisdictional Issues

a. Clean Water Act Waters of the U.S.

Five jurisdictional streams were identified in the study area, as listed in Table 15. The location of these streams is shown in Figures 8C-8D. The USACE and the NCDWQ stream delineation forms are available upon request. The physical characteristics and water quality designations of each jurisdictional stream are detailed in Section C.2. All jurisdictional streams in the study area have been designated as warm water streams, for the purposes of stream mitigation.

Table 15: Jurisdictional Characteristics of Study Area Water Resources

Map ID	Length (ft.)	Proposed Action (ft.)	Classification	Compensatory Mitigation Required	River Basin Buffers
Pachet Creek	348	**65.0**	Perennial	Yes	Not Subject
SAA	100	**76.0**	Intermittent	No	Not Subject
SB	209	**65.0**	Intermittent	Yes	Not Subject
SC	216	**80.0**	Perennial	Yes	Not Subject
SC	195	**10.0**	Intermittent	Yes*	Not Subject
SD	227	**60.0**	Perennial	Yes	Not Subject
Total	1,295	**296.0**			

* A mitigation ratio of 1:1 was determined for the intermittent reach of SC, based upon the USACE / NCDWQ field review on July 24, 2012

Thirteen jurisdictional wetlands were identified within the study area, as shown in Figures 8A-8C. Wetland classification and quality rating data are presented in Table 16. All wetlands in the study area are within the Cape Fear River basin (USGS Hydrologic Unit 03030004). USACE wetland delineation forms and NCDWQ wetland rating forms, for each site, are available upon request. Descriptions of the natural communities in each wetland site are presented in Section 3.a. Wetland sites WA, WB, WE, WG, WI, WJ, WK and WZ are included in the Headwater Forest Community. Wetland site WD is included in the Piedmont/Mountain Bottomland Forest Community. Wetland sites WC, WCA, WF and WH are described under the Riverine Swamp Forest Community.

Table 16: Jurisdictional Characteristics of Study Area Wetlands

Map ID	NCWAM Classification	Hydrologic Classification	NCDWQ Wetland Rating	Area (ac)	Proposed Action (ac)
WA	Headwater Forest	Riparian	39	0.86	**0.00**
WB	Headwater Forest	Riparian	41	0.61	**0.02**
WC	Riverine Swamp Forest	Riparian	51	0.33	**0.00**
WCA	Riverine Swamp Forest	Riparian	51	0.18	**0.00**
WD	Bottomland Hardwood Forest	Riparian	39	0.13	**0.00**
WE	Headwater Forest	Riparian	37	0.37	**0.02**
WF	Riverine Swamp Forest	Riparian	70	0.50	**0.01**
WG	Headwater Forest	Riparian	52	0.40	**0.00**
WH	Riverine Swamp Forest	Riparian	66	0.63	**0.03**
WI	Headwater Forest	Riparian	52	0.29	**0.00**
WJ	Headwater Forest	Riparian	22	0.24	**0.00**
WK	Headwater Forest	Riparian	70	0.32	**0.00**
WZ	Headwater Forest	Riparian	11	0.01	**0.00**
Total				4.87	**0.08**

b. Clean Water Act Permits

Permanent or temporary impacts to jurisdictional wetlands and streams require the appropriate Nationwide or Individual permits prior to construction. The USACE holds the final discretion as to what permit will be required to authorize project construction. If a Section 404 permit is required, then a Section 401 Water Quality Certification (WQC) from the NCDWQ will be needed.

c. Coastal Area Management Act Areas of Environmental Concern

The proposed project is not located within one of the twenty coastal counties subject to the Coastal Area Management Act (CAMA). Therefore, no CAMA permits will be required.

d. Construction Moratoria

No waters within the project study area have been identified as trout waters or as habitat for anadromous fish. Therefore, no construction moratoria will apply to any waters in project limits.

e. N.C. River Basin Buffer Rules

This project is located in the Cape Fear River Basin and is not subject to any NCDWQ regulated, riparian buffer rules.

f. Rivers and Harbors Act Section 10 Navigable Waters

No surface waters, within the project study area, have been designated by the USACE as Navigable Waters, under Section 10 of the *Rivers and Harbors Act*.

g. Wetland and Stream Mitigation

1.) Avoidance and Minimization of Impacts

The NCDOT has avoided and minimized proposed impacts to project streams and wetlands, to the greatest extent practicable, by steepening the proposed side-slopes in the roadway design.

2.) Compensatory Mitigation of Impacts

The NCDOT will investigate potential on-site stream and wetland mitigation opportunities, if such measures are necessary. If on-site mitigation is not feasible, mitigation will be provided by the North Carolina Department of Environment and Natural Resources Ecosystem Enhancement Program (EEP).

3.) Endangered Species Act Protected Species

As of January 22, 2014, the United States Fish and Wildlife Service (USFWS) lists three federally protected species for Lee County, as shown in Table 17. A brief description of the habitat requirements for each species follows, along with the Biological Conclusion rendered based on survey results in the study area. Habitat requirements are based on the current best-available information from referenced literature and/or USFWS correspondence.

Table 17: Federally Protected Species Listed for Lee County

Scientific Name	Common Name	Federal Status	Habitat Present	Biological Conclusion
Picoides borealis	Red-cockaded woodpecker	**E** (Endangered)	No	**No Effect**
Notropis mekistocholas	Cape Fear shiner	**E** (Endangered)	No	**No Effect**
Ptilimnium nodosum	Harperella	**E** (Endangered)	No	**No Effect**
Myotis septentrionalis	Northern long-eared bat	**P** (Proposed)	As noted below	As noted below

Red-cockaded woodpecker

USFWS Optimal Survey Window: Year-round; November through early March (Optimal)

Habitat Description: The red-cockaded woodpecker (RCW) typically occupies open, mature stands of stands of southern pines, particularly longleaf pine, for foraging, nesting and roosting habitat. The RCW excavates cavities for nesting and roosting in living trees, aged 60 years or older, which are contiguous with pine stands of at least 30 years of age, for foraging habitat. The foraging range of the RCW is normally no more than 0.5 mile.

Biological Conclusion: **No Effect**. Suitable habitat for the RCW does not exist in the study area. Pine stands within the project study area are less than 30 years old and are not of sufficient age to provide suitable nesting or foraging habitat. A review of the North Carolina Natural Heritage Program (NCNHP) records, updated May 2012, indicates no known RCW occurrence within 1.0 mile of the project study area.

Cape Fear shiner

USFWS Optimal Survey Window: April through June (tributaries), year-round (large rivers)

Habitat Description: The Cape Fear shiner is endemic to the upper Cape Fear River Basin, in the central piedmont of North Carolina. The species is known from tributaries and mainstreams of the Deep, Haw and Rocky Rivers. In general, habitat occurs in streams with clean gravel, cobble or boulder substrates. It is most often observed inhabiting slow pools, riffles and slow runs associated with Water Willow (*Justicia americana*) beds, which it uses for cover. Juveniles can be found inhabiting slackwater, among large outcrops and in flooded side channels and pools.

Biological Conclusion: **No Effect**. Prior to conducting in-stream surveys, a review of the NCNHP database was conducted on April 15, 2012. This review indicated that there are no know occurrences of the federally protected Cape Fear shiner in Patchet Creek, the Upper Little River or in any their tributaries. As a result of this screening, the physical stream characteristics and review of the the NCNHP data, it appears that the Cape Fear shiner does not exist in the project vicinity.

Harperella

USFWS Optimal Survey Window: July through October (only in periods of low water)

Habitat Description: In North Carolina, Harperella typically occurs on rocky or gravel shoals, sandbars and along the margins of clear, swift-flowing stream sections. Harperella is known from only two locations in NC; one population occurs in the Tar River in Granville County and another was reintroduced in the Deep River recently, after the original population disappeared from that area.

Biological Conclusion: **No Effect**. Suitable habitat for Harperella does not exist in the study area. All streams within the study area lack significant sandbars and shoals. Additionally, streams within the project study area have little to no flow and are heavily laden with detritus. A review of the NCNHP records, updated May 2012, indicates no known occurrence within 1.0 mile of the project study area.

Northern Long-Eared Bat

The USFWS has developed a programmatic conference opinion (PCO), in conjunction with the FHWA, the USACE and the NCDOT, the preservation of the Northern Long-Eared Bat (NLEB) in eastern North Carolina. This PCO includes all NCDOT projects and activities in Highway Division 1-8. The programmatic determination for the NLEB is, "May Affect, Likely to Adversely Affect." Since the NLEB is officially listed as a protected species, the FHWA and the USACE will request that the USFWS convert the PCO to a programmatic biological opinion (PBO). The PBO will provide incidental take coverage for the NLEB and will ensure compliance with Section 7 of the Endangered Species Act for five years for all NCDOT projects, with a federal nexus in Highway Divisions 1-8, which includes Lee County, the R-3830 location.

4.) Bald Eagle and Golden Eagle Protection Act

Habitat for the bald eagle primarily consists of mature forest in proximity to large bodies of open water, for foraging. Large, dominant trees are utilized for nesting sites, typically within 1.0 mile of open water. A desktop GIS assessment of the project study area, as well as the area within a 1.13-mile radius (1.0 mile, plus 660 feet) of the project limits, was performed on June 29, 2012, using 2010 color aerials. No water bodies large enough or sufficiently open to be considered potential feeding

sources, were identified. Since there was no foraging habitat within the review area, a survey of the project study area and the area within 660 feet of the project limits was not conducted. Additionally, a review of the NCNHP database updated in May 2012, revealed no known occurrences of this species within 1.0 mile of the project study area. Due to the lack of habitat, known occurrences and minimal impact anticipated from this project, it has been determined that this project will not affect this species.

5.) Endangered Species Act Candidate Species

As of January 22, 2014, the USFWS lists no Candidate species for Lee County.

6.) Essential Fish Habitat

No jurisdictional waters within the project study area have been designated as Essential Fish Habitat by the National Marine Fisheries Service (NMFS).

D. Traffic Noise and Air Quality

1. Highway Traffic Noise

In accordance with Title 23 Code of Federal Regulations Part 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise (Title 23 CFR 772) and the North Carolina Department of Transportation Traffic Noise Abatement Policy, each Type I highway project must be analyzed for predicted traffic noise impacts. In general, Type I projects are proposed State or Federal- highway projects for construction of a highway or interchange on new location, improvements of an existing highway that substantially changes the horizontal or vertical alignment or increases the vehicle capacity, or projects that involve new construction or substantial alteration of transportation facilities such as weigh stations, rest stops, ride-share lots or toll plazas.

Traffic noise impacts are determined through implementing the current Traffic Noise Model (TNM) approved by the Federal Highway Administration (FHWA) and following procedures detailed in Title 23 CFR 772, the NCDOT Traffic Noise Abatement Policy and the NCDOT Traffic Noise Analysis and Abatement Manual. When traffic noise impacts are predicted, examination and evaluation of alternative noise abatement measures must be considered for reducing or eliminating these impacts. Temporary and localized noise impacts will likely occur as a result of project construction activities. Construction noise control measures will be incorporated into the project plans and specifications.

A copy of the unabridged version of the full technical report entitled, *Traffic Noise Analysis: NC 42 from US 421 Business to NC 42 (Avents Ferry Road) and SR 1579 (Broadway Road) from NC 42 (Avents Ferry Road) to SR 1538 (East Harrington Avenue),* can be viewed in the Project Development & Environmental Analysis Unit, Century Center Building A, 1000 Birch Ridge Drive, Raleigh.

Traffic Noise Impacts and Noise Contours

The maximum number of receptors in each project alternative, predicted to become impacted by future traffic noise, is shown in the table below. The table includes those receptors expected to experience traffic noise impacts by either approaching or exceeding the FHWA Noise Abatement Criteria or by a substantial increase in exterior noise levels. The maximum extent of the 71- and 66- dB(A) noise level contours measured from the center of the proposed roadway is 44 feet and 113 feet, respectively.

Predicted Traffic Noise Impacts by Alternative*				
Alternatives	*Residential (NAC B)*	*Places of Worship/Schools, Parks, etc. (NAC C & D)*	*Businesses (NAC E)*	*Total*
Existing	19	0	0	19
No-Build	27	3	0	30
Build	32	4	0	36

*Per TNM2.5 and in accordance with 23 CFR Part 772

No-Build Alternative

The Traffic Noise Analysis also considered traffic noise impacts for the "no-build" alternative. If the proposed project does not occur, 30 receptors are predicted to experience traffic noise impacts and the future traffic noise levels will increase by approximately 2 dBA. Based upon research, humans barely detect noise level changes of 2-3 dBA. A 5-dBA change is more readily noticeable. Therefore, most people working and living near the roadway will not notice this predicted increase.

Traffic Noise Abatement Measures

Measures for reducing or eliminating the traffic noise impacts were considered for all impacted receptors in each alternative. The primary noise abatement measures evaluated for highway projects include highway alignment changes, traffic system management measures, establishment of buffer zones, noise barriers and noise insulation (NAC D only). For each of these measures, benefits versus costs (reasonableness), engineering feasibility, effectiveness and practicability and other factors were included in the noise abatement considerations.

Substantially changing the highway alignment to minimize noise impacts is not considered to be a viable option for this project due to engineering and/or environmental factors. Traffic system management measures are not considered viable for noise abatement, due to the negative impact they would have on the capacity and level of service of the proposed roadway. Costs to acquire buffer zones for impacted receptors will exceed the NCDOT base dollar value of $37,500 plus an incremental increase of $525 (as defined in the NCDOT Policy) per benefited receptor, causing this abatement measure to be unreasonable.

Noise Barriers

Noise barriers include two basic types: earthen berms and noise barriers. These structures act to diffract, absorb and reflect highway traffic noise.

This project will maintain uncontrolled right-of-way access, meaning that most noise-sensitive land uses will have direct access connections to the proposed project, and most intersections will adjoin the project at-grade. The Traffic Noise Analysis for this project confirmed that the physical breaks in potential noise barriers that would occur due to the uncontrolled right-of-way access, would prohibit any noise barrier from providing the minimum required traffic noise-level reductions at all predicted traffic noise impacts, as defined by the noise abatement measure feasibility criteria of the NCDOT Traffic Noise Abatement Policy.

Summary

Based on this preliminary study, traffic noise abatement is not recommended and no noise abatement measures are proposed. This evaluation completes the highway traffic noise requirements of Title 23 CFR Part 772. No additional noise analysis will be performed for this project unless warranted by a substantial change in the project's design concept or scope.

In accordance with NCDOT Traffic Noise Abatement Policy, the Federal/State governments are not responsible for providing noise abatement measures for new development for which building permits are issued after the Date-of-Public-Knowledge. The Date-of-Public-Knowledge of the proposed highway project will be the approval date of the Categorical Exclusion (CE). For development occurring after this date, local governing bodies are responsible to insure that noise-compatible designs are utilized along the proposed facility.

2. Air Quality

Air pollution originates from various sources. Emissions from industry and internal combustion engines are the most prevalent sources. The impact resulting from highway construction ranges from intensifying existing air pollution problems to improving the ambient air quality. Changing traffic patterns are a primary concern when determining the impact of a new highway facility or the improvement of an existing highway facility. Motor vehicles emit carbon monoxide (CO), nitrogen oxide (NO), hydrocarbons (HC), particulate matter, sulfur dioxide (SO2), and lead (Pb) (listed in order of decreasing emission rate).

The Federal Clean Air Act of 1970 established the NAAQS. These were established in order to protect public health, safety, and welfare from known or anticipated effects of air pollutants. The most recent amendments to the NAAQS contain criteria for sulfur dioxide (SO2), particulate matter (PM10, 10-micron and smaller, PM2.5, 2.5 micron and smaller), carbon monoxide (CO), nitrogen dioxide (NO2), ozone (O3), and lead (Pb). The National and North Carolina Ambient Air Quality Standards are presented in Table 1.

The primary pollutants from motor vehicles are unburned hydrocarbons, NOx, CO, and particulates. Hydrocarbons (HC) and Nitrogen oxides (NOx) can combine in a complex series of reactions catalyzed by sunlight to produce photochemical oxidants such as ozone and NO2. Because these reactions take place over a period of several hours, maximum concentrations of photochemical oxidants are often found far downwind of the precursor sources. These pollutants are regional problems.

A project-level air quality analysis was prepared for this project. A copy of the unabridged version of the full technical report entitled Revised Air Quality Analysis, Widening NC 42/SR 1579 (Broadway Road); dated April 22, 2014 can be viewed at the Project Development & Environmental Analysis Unit, Century Center Building A, 1010 Birch Ridge Drive, Raleigh.

Attainment Status

The project is located in Lee County, which complies with the National Ambient Air Quality Standards. This project will not add substantial new capacity or create a facility that is

likely to meaningfully increase emissions. Therefore, it is not anticipated to create any adverse effects on the air quality of this attainment area.

Mobile Source Air Toxics (MSAT)

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the U.S. Environmental Protection Agency (EPA) regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007), and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS) (http://www.epa.gov/iris/). In addition, EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (NATA) (http://www.epa.gov/ttn/atw/nata1999/). These are acrolein, benzene, 1,3-butidiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules. The 2007 EPA rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using EPA's MOBILE6.2 model, even if vehicle activity (vehicle-miles travelled, VMT) increases by 145 percent as assumed, a combined reduction of 72 percent in the total annual emission rate for the priority MSAT is projected from 1999 to 2050.

MSAT analyses are intended to capture the net change in emissions within an affected environment, defined as the transportation network affected by the project. The affected environment for MSATs may be different than the affected environment defined in the NEPA document for other environmental effects, such as noise or wetlands. Analyzing MSATs only within a geographically-defined "study area" will not capture the emissions effects of changes in traffic on roadways outside of that area, which is particularly important where the project creates an alternative route or diverts traffic from one roadway class to another. At the other extreme, analyzing a metropolitan area's entire roadway network will result in emissions estimates for many roadway links not affected by the project, diluting the results of the analysis.

Incomplete or Unavailable Information for Project Specific MSAT Health Impact Analysis

Per the FHWA, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information

System (IRIS), which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (EPA, www.epa.gov/iris/). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA's Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are; cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI, http://pubs.healtheffects.org/view.php?id=282) or in the future as vehicle emissions substantially decrease (HEI, http://pubs.healtheffects.org/view.php?id=306).

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts - each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (http://pubs.healtheffects.org/view.php?id=282). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA (www.epa.gov/risk/basicinfor mation. htm#g) and the HEI (http://pubs.healtheffects.org/getfile.php?u=395) have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than

approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers who would need to weigh this information against project benefits such as, reducing traffic congestion, accident rates, and fatalities, plus improved access for emergency response, that are better suited for quantitative analysis.

MSAT Conclusion

The science of mobile source air toxics is still evolving. As the science progresses, FHWA will continue to revise and update this guidance. FHWA is working with stakeholders, EPA and others to better understand the strengths and weaknesses of developing analysis tools and the applicability on the project level decision documentation process.

Summary

Vehicles are a major contributor to decreased air quality because they emit a variety of pollutants into the air. Changing traffic patterns are a primary concern when determining the impact of a new highway facility or the improvement of an existing highway facility. New highways or the widening of existing highways increase localized levels of vehicle emissions, but these increases could be offset due to increases in speeds from reductions in congestion and because vehicle emissions will decrease in areas where traffic shifts to the new roadway. Significant progress has been made in reducing criteria pollutant emissions from motor vehicles and improving air quality, even as vehicle travel has increased rapidly.

The project is located in Lee County, which complies with the National Ambient Air Quality Standards. This project will not add substantial new capacity or create a facility that is likely to meaningfully increase emissions. Therefore, it is not anticipated to create any adverse effects on the air quality of this attainment area. This evaluation completes the assessment requirements for air quality of the 1990 Clean Air Act Amendments and the NEPA process. No additional reports are necessary.

VI. COMMENTS AND COORDINATION

A. Citizens Informational Workshop

A Citizens Informational Workshop (CIW) was held in the East Lee Middle School, on October 11, 2011. A press release was issued on September 28, 2011, advising local citizens of the preferred project alternative as shown in Figures 9A-C. Approximately 95 people attended this workshop in Sanford. Several municipal staff members and local elected officials attended the R-3830 CIW. A Local Officials Meeting was held earlier that day in the Broadway Community Center, on SR 1579 (Broadway Road) in Broadway. Fourteen Lee County officials and NCDOT staff members discussed the project design and the potential project environmental impacts. One design alternative for this proposed roadway improvement project was presented to local, project-area officials and citizens during these meetings.

Most local citizens were in favor of the project, but were concerned about impacts to the Shallow Well Baptist Church graveyards on both sides of NC 42, as well as about the Boy Scout meeting house, also on the Shallow Well Baptist Church property. Additional right-of-way concerns were expressed by a few local businesses near South Horner Boulevard, sidewalks near the middle school were requested and concerns about continued access to Lett Family Park were expressed.

B. Agency Coordination

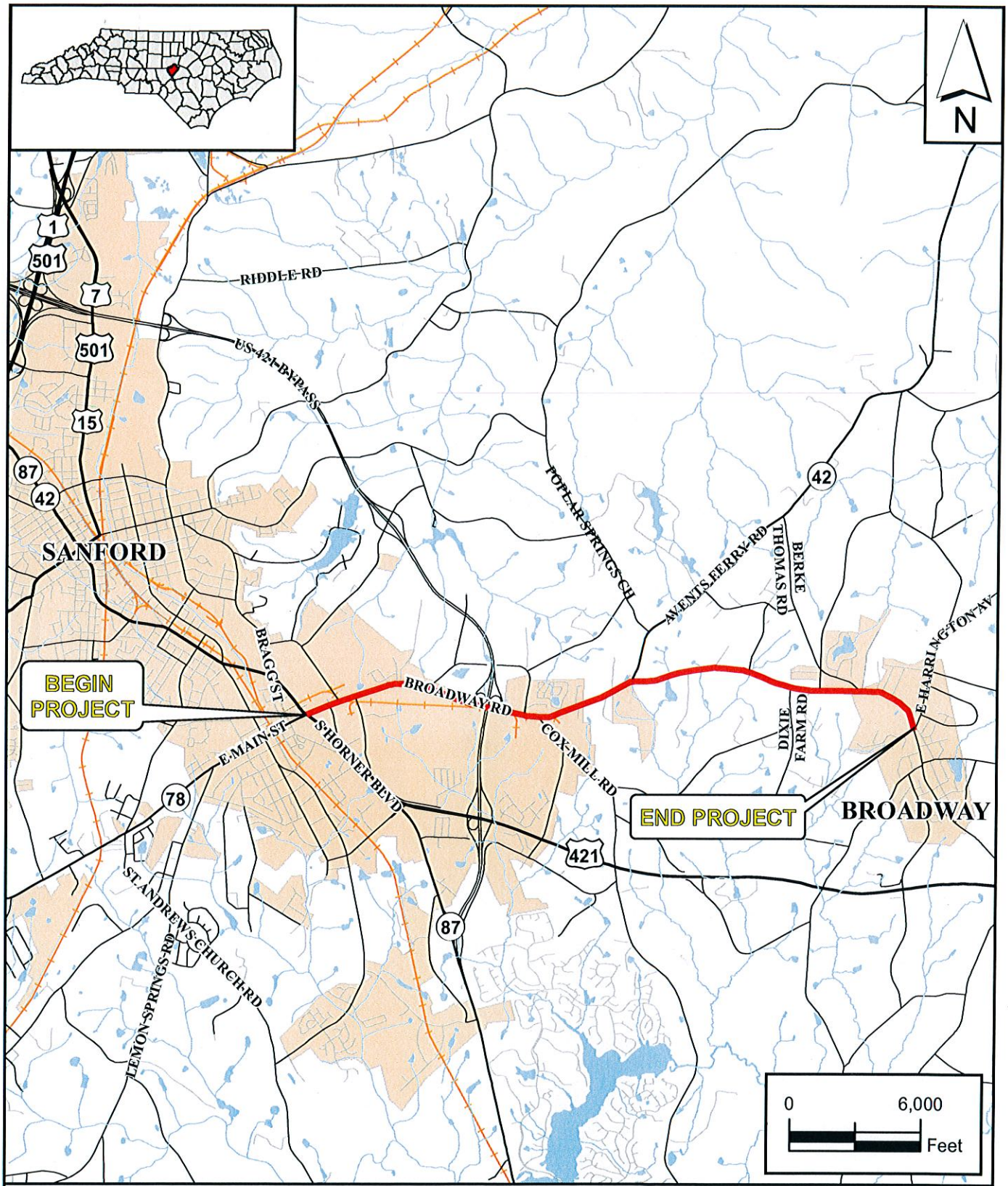
NCDOT Project Development staff consulted with the Federal Highway Administration (FHWA), the US Army Corps of Engineers (USACE), the US Environmental Protection Agency (US EPA), the US Fish and Wildlife Service (USFWS), the North Carolina Wildlife Resources Commission (NCWRC), the NCDOT Highway/Rail Unit - Railroad Surface & Encroachment Section, the North Carolina Department of Environment and Natural Resources (NCDENR) - Division of Water Quality (NCDWQ), the Triangle Area Rural Planning Organization (TARPO), the Sanford-Lee County Planning Department staff, City of Sanford officials and Town of Broadway officials, during the planning, development and public involvement phases of this project.

The USACE staff verified project stream and wetland delineation on-site, with the NCDOT Natural Environment Section staff prior to the final reporting of these findings. Per the NCDOT Cultural Resources staff, a survey recommended by the North Carolina Historic Preservation Office (HPO), was required for this project. This survey was reviewed by their staff, as well. The NCDOT Highway Division 8 Board of Transportation Member, the NC Department of Public Instruction and the NC Department of Marine Fisheries were also contacted for input, during the planning, development and public involvement phases of this project.

C. Design Public Meeting

Pending confirmation of the project funding status in the final 2015 NCDOT STIP ranking, a recommended project design alternative and mapping for the R-3830 roadway improvement project will be presented to local, project-area officials in a local officials meeting and to local citizens, during a design public meeting. The design public meeting comments will be documented in the R-3830 right-of-way consultation.

FIGURES



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

VINICITY MAP
R-3830:
NC 42 - SR 1579 Improvements

LEE COUNTY
TIP PROJECT R-3830

County:	LEE
Div: 8	TIP# R-3830
WBS:	38887.1.1
Date:	JULY 2011

Figure 1

By: J.TORTORELLA

DESIGN PUBLIC HEARING MAP

PROJECT 3.8887.1.1 (R-3830)
F.A. PROJECT STP-0042(49)

LEE COUNTY

NC 42 FROM US 421 (HORNER BOULEVARD) IN SANFORD TO SR 1579 AND ALONG SR 1579 FROM NC 42 (AVENTS FERRY ROAD) TO SR 1538 (BUCKHORN AVENUE) IN BROADWAY

ROLL 1 OF 4

DESIGN PUBLIC HEARING MAP
PROJECT 3.8887.1.1 (R-3830)
F.A. PROJECT STP-0042(49)
LEE COUNTY
NC 42 FROM US 421 (HORNER BOULEVARD) IN SANFORD TO SR 1579 AND ALONG SR 1579 FROM NC 42 (AVENTS FERRY ROAD) TO SR 1538 (BUCKHORN AVENUE) IN BROADWAY
ROLL 1 OF 4

LEGEND

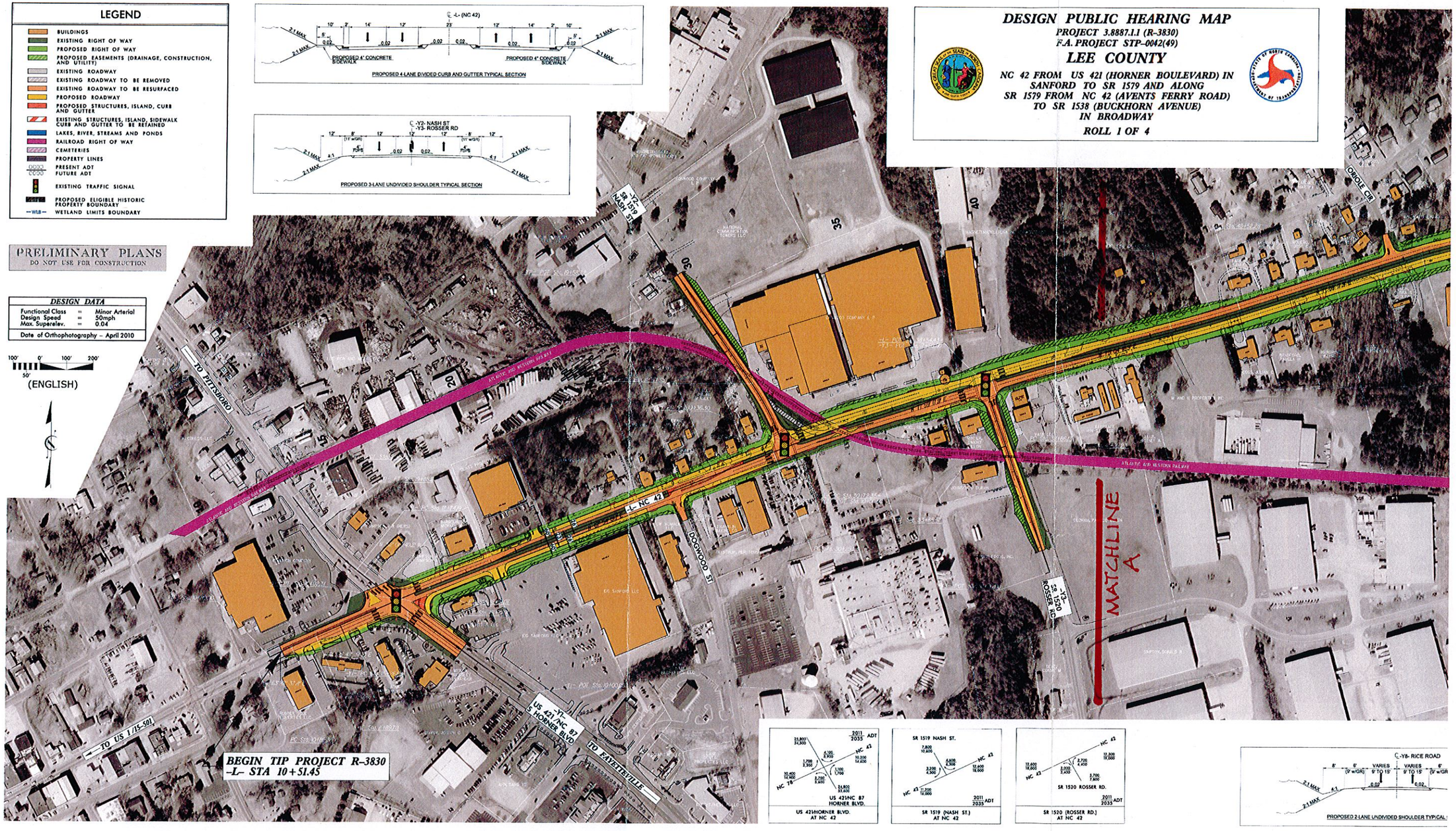
- BUILDINGS
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPOSED EASEMENTS (DRAINAGE, CONSTRUCTION, AND UTILITY)
- EXISTING ROADWAY
- EXISTING ROADWAY TO BE REMOVED
- EXISTING ROADWAY TO BE RESURFACED
- PROPOSED ROADWAY
- PROPOSED STRUCTURES, ISLAND, CURB AND GUTTER
- EXISTING STRUCTURES, ISLAND, SIDEWALK CURB AND GUTTER TO BE RETAINED
- LAKES, RIVER, STREAMS AND PONDS
- RAILROAD RIGHT OF WAY
- CEMETERIES
- PROPERTY LINES
- PRESENT ADT / FUTURE ADT
- EXISTING TRAFFIC SIGNAL
- PROPOSED ELIGIBLE HISTORIC PROPERTY BOUNDARY
- WETLAND LIMITS BOUNDARY

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DESIGN DATA		
Functional Class	=	Minor Arterial
Design Speed	=	50mph
Max. Superelev.	=	0.04

Date of Orthophotography – April 2010

100' 0' 100' 200'
50'
(ENGLISH)



PROPOSED 4-LANE DIVIDED CURB AND GUTTER TYPICAL SECTION

PROPOSED 3-LANE UNDIVIDED SHOULDER TYPICAL SECTION

US 421/HORNER BLVD. AT NC 42

SR 1519 (NASH ST.) AT NC 42

SR 1520 (ROSSER RD.) AT NC 42

PROPOSED 2-LANE UNDIVIDED SHOULDER TYPICAL

Figure 2A

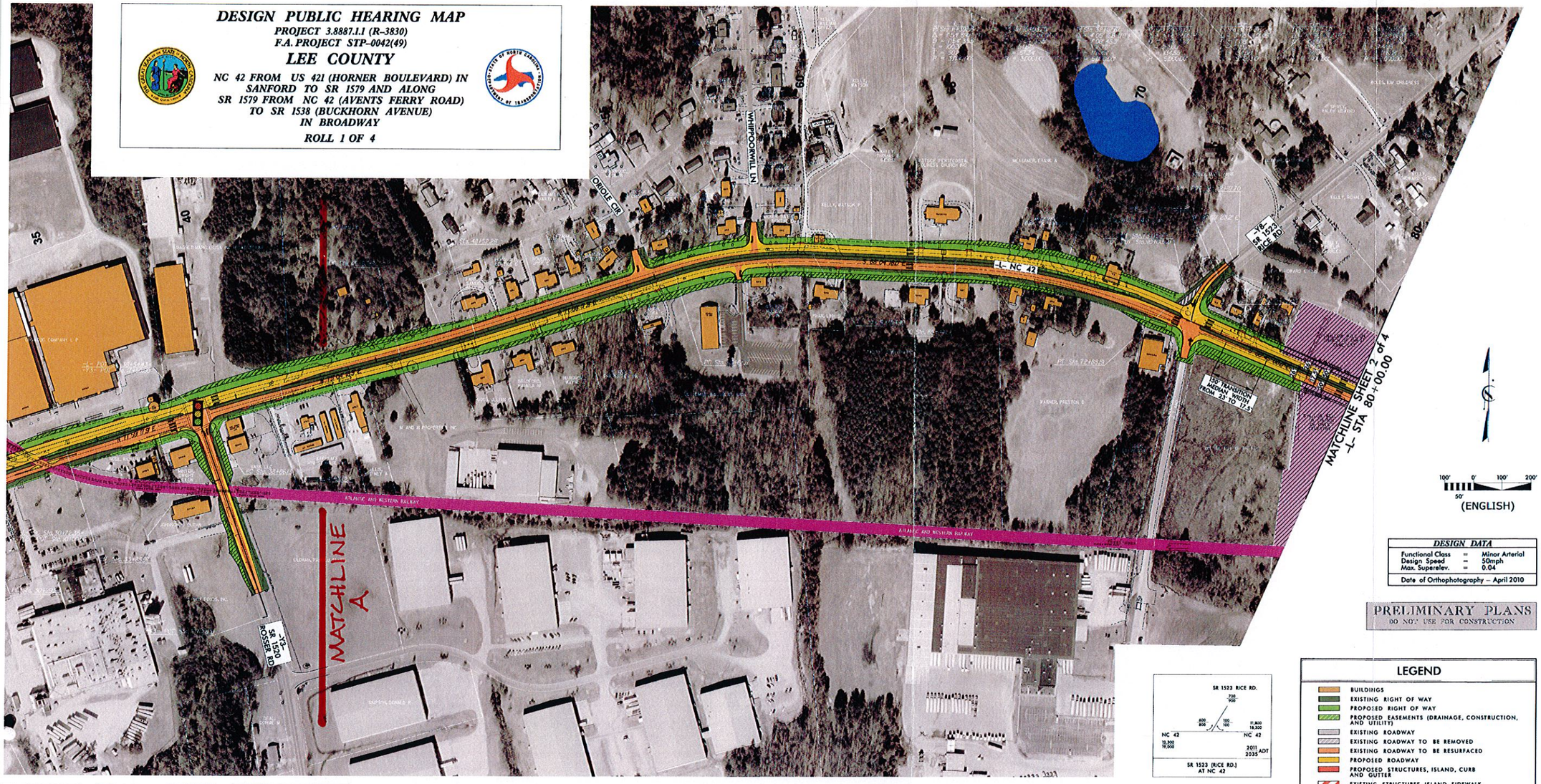
DESIGN PUBLIC HEARING MAP

PROJECT 3.8887.1.1 (R-3830)
F.A. PROJECT STP-0042(49)

LEE COUNTY

NC 42 FROM US 421 (HORNER BOULEVARD) IN SANFORD TO SR 1579 AND ALONG SR 1579 FROM NC 42 (AVENTS FERRY ROAD) TO SR 1538 (BUCKHORN AVENUE) IN BROADWAY

ROLL 1 OF 4



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50'
(ENGLISH)

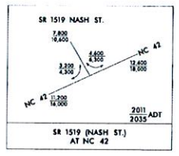
DESIGN DATA		
Functional Class	=	Minor Arterial
Design Speed	=	50mph
Max. Superelev.	=	0.04

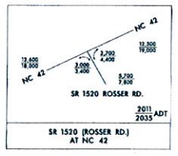
Date of Orthophotography – April 2010

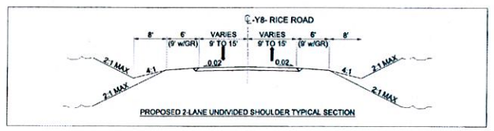
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

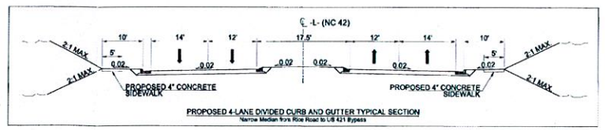
LEGEND

- BUILDINGS
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPOSED EASEMENTS (DRAINAGE, CONSTRUCTION, AND UTILITY)
- EXISTING ROADWAY
- EXISTING ROADWAY TO BE REMOVED
- EXISTING ROADWAY TO BE RESURFACED
- PROPOSED ROADWAY
- PROPOSED STRUCTURES, ISLAND, CURB AND GUTTER
- EXISTING STRUCTURES, ISLAND, SIDEWALK CURB AND GUTTER TO BE RETAINED
- LAKES, RIVER, STREAMS AND PONDS
- RAILROAD RIGHT OF WAY
- CEMETERIES
- PROPERTY LINES
- PRESENT ADT / FUTURE ADT
- EXISTING TRAFFIC SIGNAL
- PROPOSED ELIGIBLE HISTORIC PROPERTY BOUNDARY
- —WLB— WETLAND LIMITS BOUNDARY









DESIGN PUBLIC HEARING MAP
PROJECT 3.8887.1.1 (R-3830)
F.A. PROJECT STP-0042(49)
LEE COUNTY
NC 42 FROM US 421 (HORNER BOULEVARD) IN SANFORD TO SR 1579 AND ALONG SR 1579 FROM NC 42 (AVENTS FERRY ROAD) TO SR 1538 (BUCKHORN AVENUE) IN BROADWAY
ROLL 1 OF 4

Figure 2B

DESIGN PUBLIC HEARING MAP

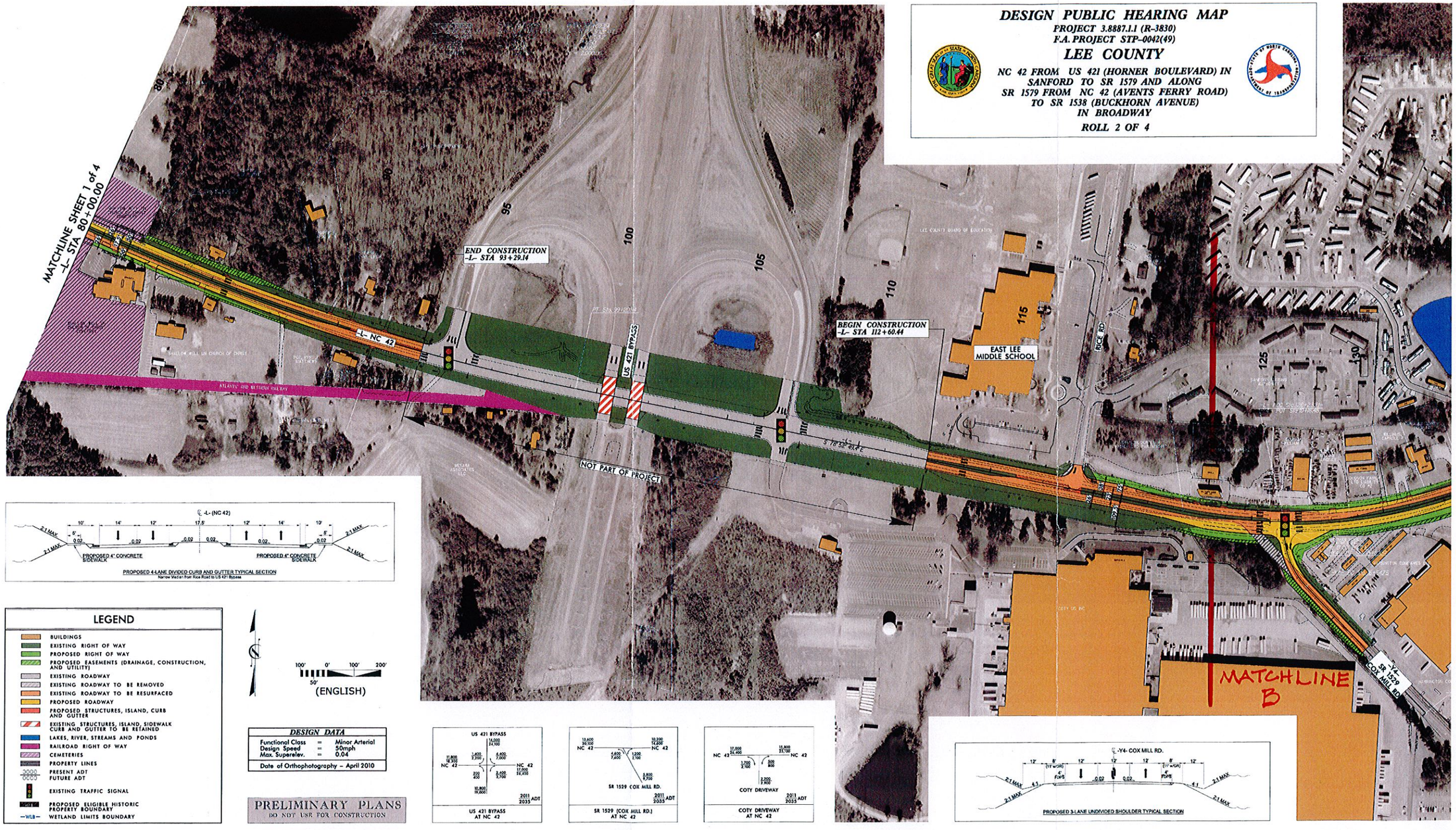
PROJECT 3.8887.1.1 (R-3830)
F.A. PROJECT STP-0042(49)

LEE COUNTY

NC 42 FROM US 421 (HORNER BOULEVARD) IN SANFORD TO SR 1579 AND ALONG SR 1579 FROM NC 42 (AVENTS FERRY ROAD) TO SR 1538 (BUCKHORN AVENUE) IN BROADWAY

ROLL 2 OF 4

DESIGN PUBLIC HEARING MAP
PROJECT 3.8887.1.1 (R-3830)
F.A. PROJECT STP-0042(49)
LEE COUNTY
NC 42 FROM US 421 (HORNER BOULEVARD) IN SANFORD TO SR 1579 AND ALONG SR 1579 FROM NC 42 (AVENTS FERRY ROAD) TO SR 1538 (BUCKHORN AVENUE) IN BROADWAY
ROLL 2 OF 4



LEGEND

- BUILDINGS
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPOSED EASEMENTS (DRAINAGE, CONSTRUCTION, AND UTILITY)
- EXISTING ROADWAY
- EXISTING ROADWAY TO BE REMOVED
- EXISTING ROADWAY TO BE RESURFACED
- PROPOSED ROADWAY
- PROPOSED STRUCTURES, ISLAND, CURB AND GUTTER
- EXISTING STRUCTURES, ISLAND, SIDEWALK CURB AND GUTTER TO BE RETAINED
- LAKES, RIVER, STREAMS AND PONDS
- RAILROAD RIGHT OF WAY
- CEMETERIES
- PROPERTY LINES
- PRESENT ADT / FUTURE ADT
- EXISTING TRAFFIC SIGNAL
- PROPOSED ELIGIBLE HISTORIC PROPERTY BOUNDARY
- —WLB— WETLAND LIMITS BOUNDARY

100' 0' 100' 200'
50'
(ENGLISH)

DESIGN DATA		
Functional Class	=	Minor Arterial
Design Speed	=	50mph
Max. Superelev.	=	0.04

Date of Orthophotography – April 2010

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Figure 2C

DESIGN PUBLIC HEARING MAP

PROJECT 3.8887.1.1 (R-3830)
F.A. PROJECT STP-0042(49)

LEE COUNTY

NC 42 FROM US 421 (HORNER BOULEVARD) IN SANFORD TO SR 1579 AND ALONG SR 1579 FROM NC 42 (AVENTS FERRY ROAD) TO SR 1538 (BUCKHORN AVENUE) IN BROADWAY

ROLL 2 OF 4

BEGIN CONSTRUCTION
-L- STA 112+60.44

EAST LEE MIDDLE SCHOOL

LEE COUNTY BOARD OF EDUCATION

RICE RD

THORNWOOD LOOP

-L- NC 42

CHALLIN DR

SANFORD CITY LIMITS

MATCHLINE SHEET 3 of 4
-L- STA 160+00.00

SR 1529
COX MILL RD

MATCHLINE B

-Y4- COX MILL RD.

PROPOSED 3-LANE UNDIVIDED SHOULDER TYPICAL SECTION

-L- (NC 42)

PROPOSED 4" CONCRETE SIDEWALK

PROPOSED 4" CONCRETE SIDEWALK

PROPOSED 4-LANE DIVIDED CURB AND GUTTER TYPICAL SECTION

100' 0' 100' 200'
50'
(ENGLISH)

DESIGN DATA

Functional Class	=	Minor Arterial
Design Speed	=	50mph
Max. Superelev.	=	0.04

Date of Orthophotography – April 2010

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

LEGEND

- BUILDINGS
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPOSED EASEMENTS (DRAINAGE, CONSTRUCTION, AND UTILITY)
- EXISTING ROADWAY
- EXISTING ROADWAY TO BE REMOVED
- EXISTING ROADWAY TO BE RESURFACED
- PROPOSED ROADWAY
- PROPOSED STRUCTURES, ISLAND, CURB AND GUTTER
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- RAILROAD RIGHT OF WAY
- CEMETERIES
- PROPERTY LINES
- PRESENT ADT / FUTURE ADT
- EXISTING TRAFFIC SIGNAL
- PROPOSED ELIGIBLE HISTORIC PROPERTY BOUNDARY
- WETLAND LIMITS BOUNDARY

DESIGN PUBLIC HEARING MAP
PROJECT 3.8887.1.1 (R-3830)
F.A. PROJECT STP-0042(49)
LEE COUNTY
NC 42 FROM US 421 (HORNER BOULEVARD) IN SANFORD TO SR 1579 AND ALONG SR 1579 FROM NC 42 (AVENTS FERRY ROAD) TO SR 1538 (BUCKHORN AVENUE) IN BROADWAY
ROLL 2 OF 4

Figure 2D

DESIGN PUBLIC HEARING MAP

PROJECT 3.8887.1.1 (R-3830)
F.A. PROJECT STP-0042(49)

LEE COUNTY

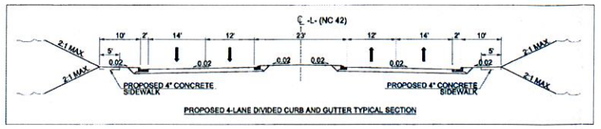
NC 42 FROM US 421 (HORNER BOULEVARD) IN SANFORD TO SR 1579 AND ALONG SR 1579 FROM NC 42 (AVENTS FERRY ROAD) TO SR 1538 (BUCKHORN AVENUE) IN BROADWAY

ROLL 3 OF 4

DESIGN PUBLIC HEARING MAP
PROJECT 3.8887.1.1 (R-3830)
F.A. PROJECT STP-0042(49)
LEE COUNTY
NC 42 FROM US 421 (HORNER BOULEVARD) IN SANFORD TO SR 1579 AND ALONG SR 1579 FROM NC 42 (AVENTS FERRY ROAD) TO SR 1538 (BUCKHORN AVENUE) IN BROADWAY
ROLL 3 OF 4

LEGEND

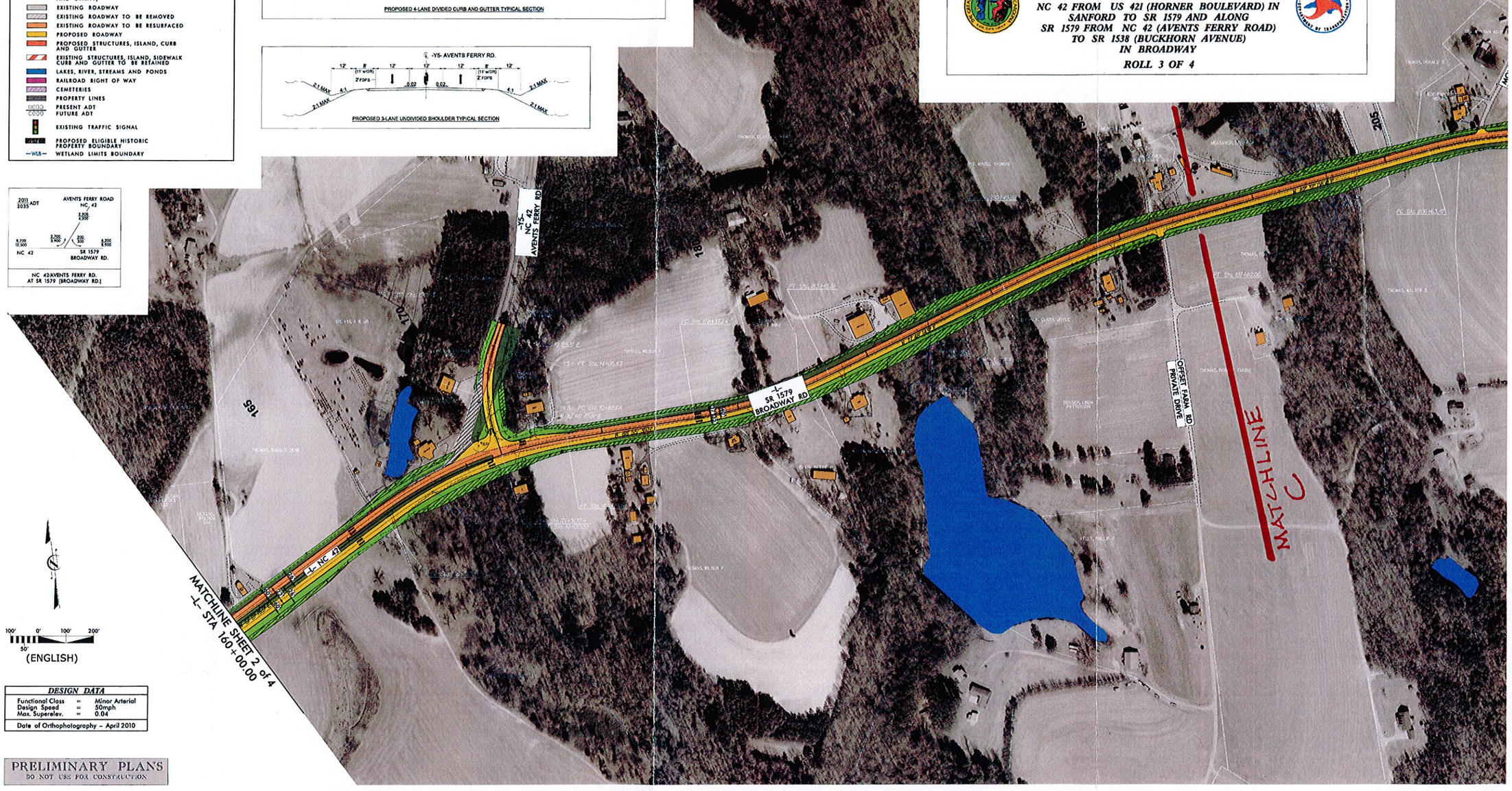
- BUILDINGS
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPOSED EASEMENTS (DRAINAGE, CONSTRUCTION, AND UTILITY)
- EXISTING ROADWAY
- EXISTING ROADWAY TO BE REMOVED
- EXISTING ROADWAY TO BE RESURFACED
- PROPOSED ROADWAY
- PROPOSED STRUCTURES, ISLAND, CURB AND GUTTER
- EXISTING STRUCTURES, ISLAND, SIDEWALK CURB AND GUTTER TO BE RETAINED
- LAKES, RIVER, STREAMS AND PONDS
- RAILROAD RIGHT OF WAY
- CEMETERIES
- PROPERTY LINES
- PRESENT ADT / FUTURE ADT
- EXISTING TRAFFIC SIGNAL
- PROPOSED ELIGIBLE HISTORIC PROPERTY BOUNDARY
- —WLB— WETLAND LIMITS BOUNDARY



PROPOSED 4-LANE DIVIDED CURB AND GUTTER TYPICAL SECTION

PROPOSED 3-LANE UNDIVIDED SHOULDER TYPICAL SECTION

NC 42/AVENTS FERRY RD.
AT SR 1579 (BROADWAY RD.)



DESIGN DATA		
Functional Class	=	Minor Arterial
Design Speed	=	50mph
Max. Superelev.	=	0.04

Date of Orthophotography – April 2010

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Figure 2E

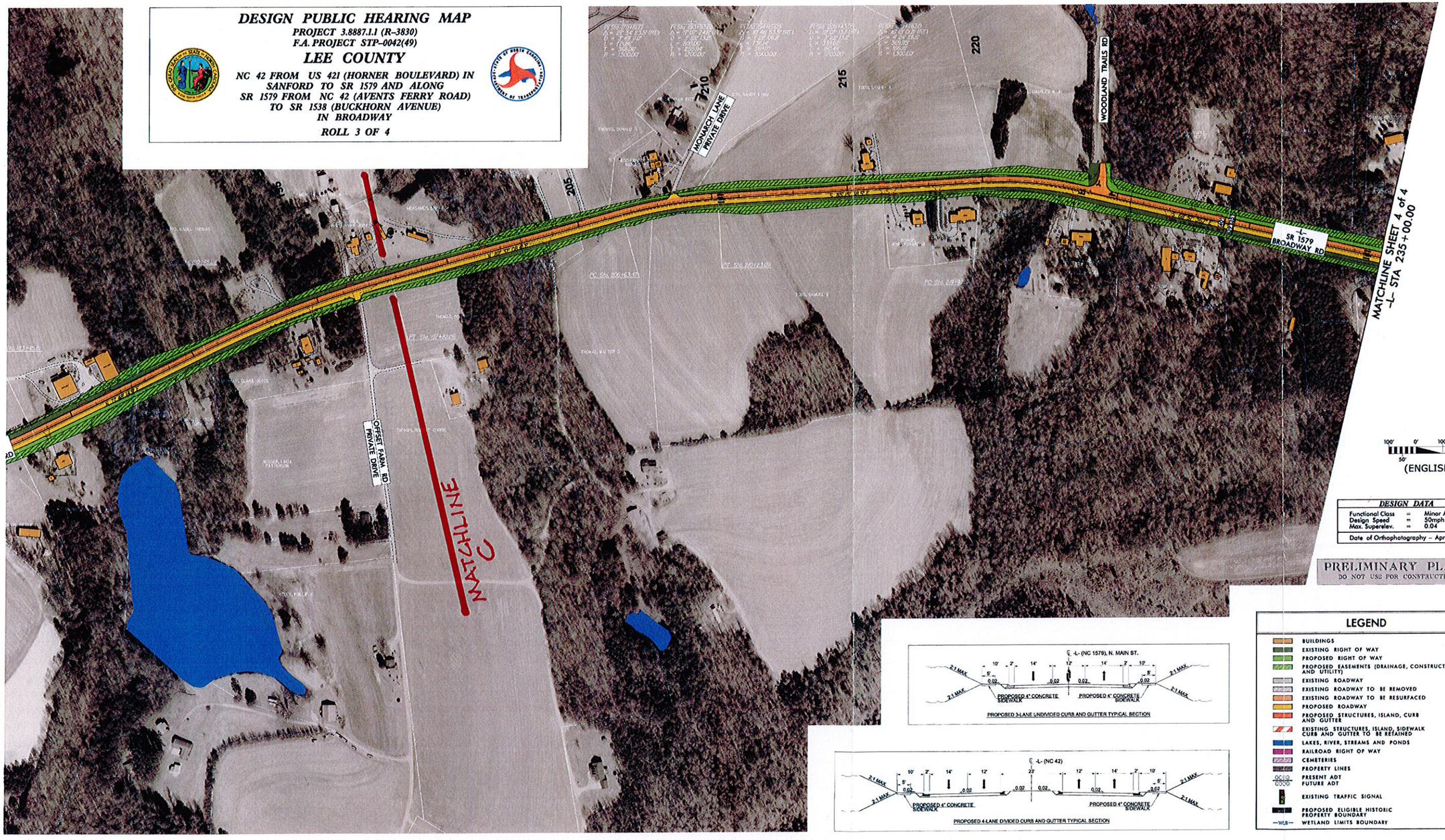
DESIGN PUBLIC HEARING MAP

PROJECT 3.8887.1.1 (R-3830)
F.A. PROJECT STP-0042(49)

LEE COUNTY

NC 42 FROM US 421 (HORNER BOULEVARD) IN SANFORD TO SR 1579 AND ALONG SR 1579 FROM NC 42 (AVENTS FERRY ROAD) TO SR 1538 (BUCKHORN AVENUE) IN BROADWAY

ROLL 3 OF 4



100' 0' 100' 200'
50'
(ENGLISH)

DESIGN DATA		
Functional Class	=	Minor Arterial
Design Speed	=	50mph
Max. Superelev.	=	0.04
Date of Orthophotography – April 2010		

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PROPOSED 3-LANE UNDIVIDED CURB AND GUTTER TYPICAL SECTION

PROPOSED 4-LANE DIVIDED CURB AND GUTTER TYPICAL SECTION

LEGEND

- BUILDINGS
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPOSED EASEMENTS (DRAINAGE, CONSTRUCTION, AND UTILITY)
- EXISTING ROADWAY
- EXISTING ROADWAY TO BE REMOVED
- EXISTING ROADWAY TO BE RESURFACED
- PROPOSED ROADWAY
- PROPOSED STRUCTURES, ISLAND, CURB AND GUTTER
- EXISTING STRUCTURES, ISLAND, SIDEWALK CURB AND GUTTER TO BE RETAINED
- LAKES, RIVER, STREAMS AND PONDS
- RAILROAD RIGHT OF WAY
- CEMETERIES
- PROPERTY LINES
- PRESENT ADT / FUTURE ADT
- EXISTING TRAFFIC SIGNAL
- PROPOSED ELIGIBLE HISTORIC PROPERTY BOUNDARY
- WETLAND LIMITS BOUNDARY

DESIGN PUBLIC HEARING MAP
PROJECT 3.8887.1.1 (R-3830)
F.A. PROJECT STP-0042(49)
LEE COUNTY
NC 42 FROM US 421 (HORNER BOULEVARD) IN SANFORD TO SR 1579 AND ALONG SR 1579 FROM NC 42 (AVENTS FERRY ROAD) TO SR 1538 (BUCKHORN AVENUE) IN BROADWAY
ROLL 3 OF 4

Figure 2F

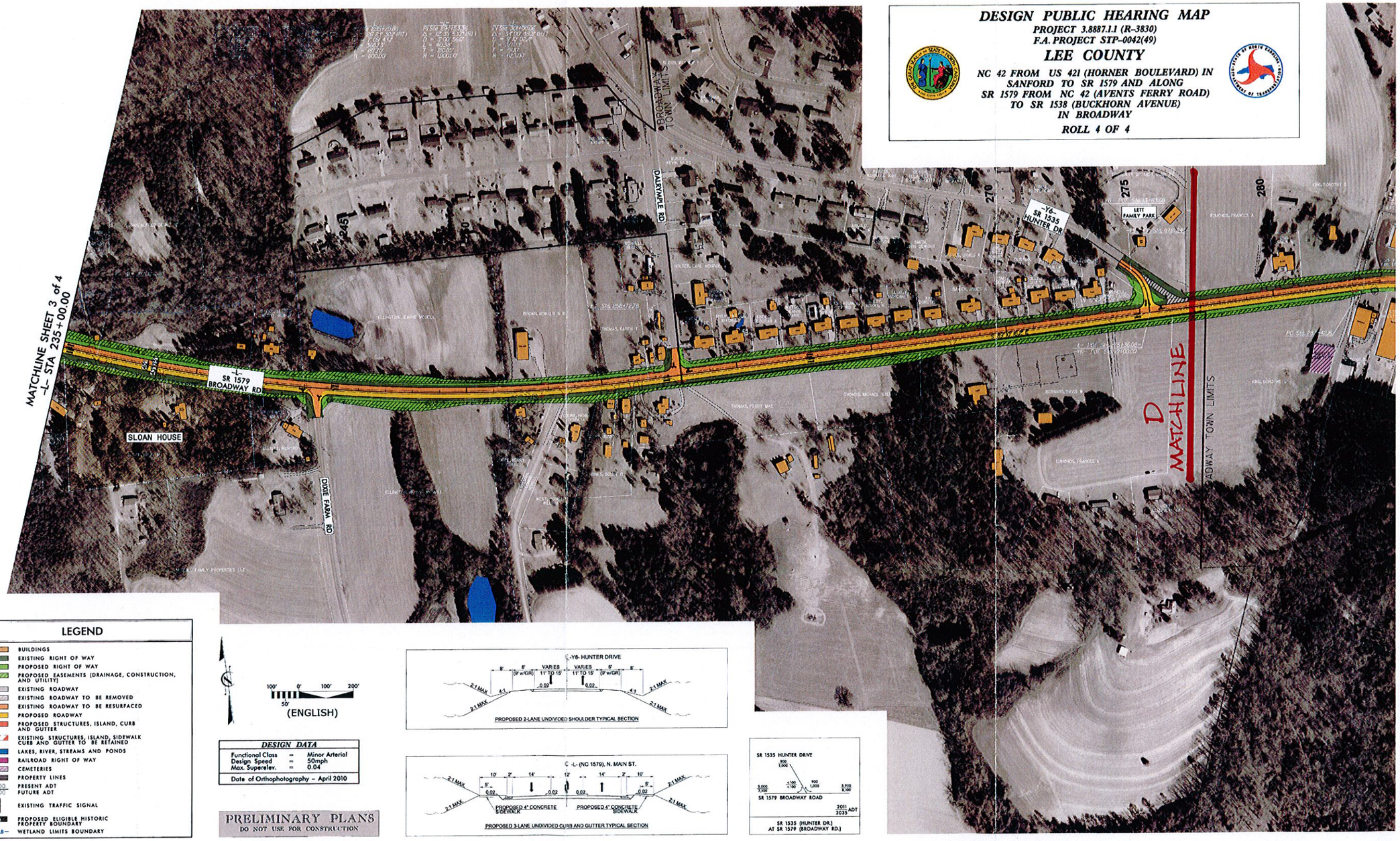
DESIGN PUBLIC HEARING MAP

PROJECT 3.8887.1.1 (R-3830)
F.A. PROJECT STP-0042(49)

LEE COUNTY

NC 42 FROM US 421 (HORNER BOULEVARD) IN SANFORD TO SR 1579 AND ALONG SR 1579 FROM NC 42 (AVENTS FERRY ROAD) TO SR 1538 (BUCKHORN AVENUE) IN BROADWAY

ROLL 4 OF 4



LEGEND

- BUILDINGS
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPOSED EASEMENTS (DRAINAGE, CONSTRUCTION, AND UTILITY)
- EXISTING ROADWAY
- EXISTING ROADWAY TO BE REMOVED
- EXISTING ROADWAY TO BE RESURFACED
- PROPOSED ROADWAY
- PROPOSED STRUCTURES, ISLAND, CURB AND GUTTER
- EXISTING STRUCTURES, ISLAND, SIDEWALK CURB AND GUTTER TO BE RETAINED
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- RAILROAD RIGHT OF WAY
- CEMETERIES
- PROPERTY LINES
- PRESENT ADT / FUTURE ADT
- EXISTING TRAFFIC SIGNAL
- PROPOSED ELIGIBLE HISTORIC PROPERTY BOUNDARY
- —WLB— WETLAND LIMITS BOUNDARY

100' 0' 100' 200'
50'
(ENGLISH)

DESIGN DATA		
Functional Class	=	Minor Arterial
Design Speed	=	50mph
Max. Superelev.	=	0.04

Date of Orthophotography – April 2010

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Figure 2G

DESIGN PUBLIC HEARING MAP

PROJECT 3.8887.1.1 (R–3830)
F.A. PROJECT STP–0042(49)

LEE COUNTY

NC 42 FROM US 421 (HORNER BOULEVARD) IN SANFORD TO SR 1579 AND ALONG SR 1579 FROM NC 42 (AVENTS FERRY ROAD) TO SR 1538 (BUCKHORN AVENUE) IN BROADWAY

ROLL 4 OF 4

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DESIGN DATA

Functional Class	=	Minor Arterial
Design Speed	=	50mph
Max. Superelev.	=	0.04

Date of Orthophotography – April 2010

100' 0' 100' 200'
50'
(ENGLISH)

LEGEND

- BUILDINGS
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPOSED EASEMENTS (DRAINAGE, CONSTRUCTION, AND UTILITY)
- EXISTING ROADWAY
- EXISTING ROADWAY TO BE REMOVED
- EXISTING ROADWAY TO BE RESURFACED
- PROPOSED ROADWAY
- PROPOSED STRUCTURES, ISLAND, CURB AND GUTTER
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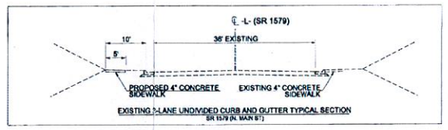
- RAILROAD RIGHT OF WAY
- CEMETERIES
- PROPERTY LINES
- PRESENT ADT / FUTURE ADT
- EXISTING TRAFFIC SIGNAL
- PROPOSED ELIGIBLE HISTORIC PROPERTY BOUNDARY
- —WLB— WETLAND LIMITS BOUNDARY



EXISTING 1-LANE UNDIVIDED CURB AND GUTTER TYPICAL SECTION
SR 1579 (N. MAIN ST.)

END TIP PROJECT R–3830
–L– STA 308+73.49

DESIGN PUBLIC HEARING MAP
PROJECT 3.8887.1.1 (R–3830)
F.A. PROJECT STP–0042(49)
LEE COUNTY
NC 42 FROM US 421 (HORNER BOULEVARD) IN SANFORD TO SR 1579 AND ALONG SR 1579 FROM NC 42 (AVENTS FERRY ROAD) TO SR 1538 (BUCKHORN AVENUE) IN BROADWAY
ROLL 4 OF 4

Figure 2H

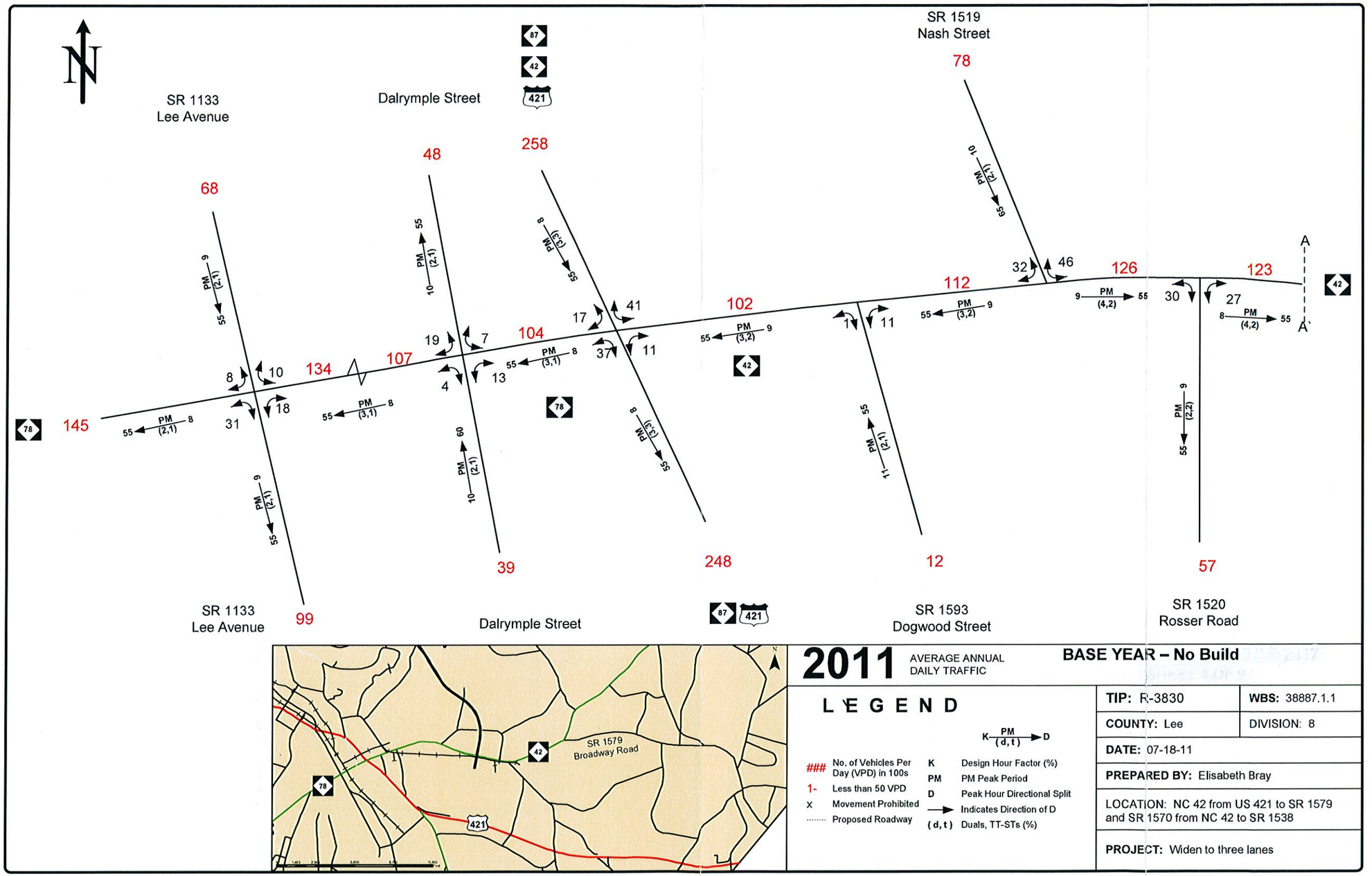
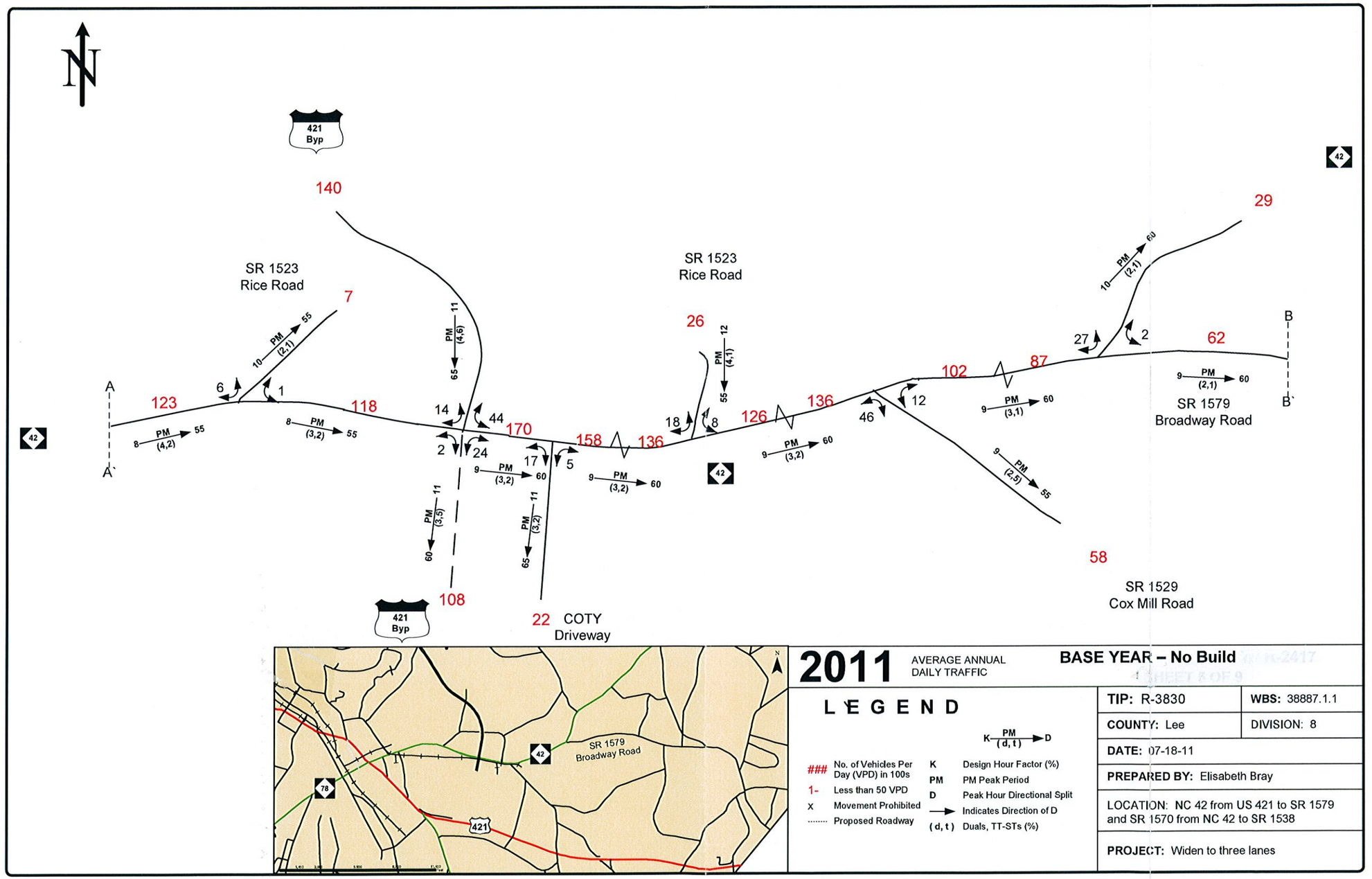

SR 1519
Nash Street
SR 1133
Lee Avenue
Dalrymple Street
SR 1133
Lee Avenue
Dalrymple Street
SR 1593
Dogwood Street
SR 1520
Rosser Road
SR 1579
Broadway Road
68
48
258
78
145
134
107
104
102
112
126
123
99
39
248
12
57
2011 AVERAGE ANNUAL DAILY TRAFFIC
BASE YEAR – No Build
LEGEND
No. of Vehicles Per Day (VPD) in 100s
1- Less than 50 VPD
X Movement Prohibited
Proposed Roadway
K Design Hour Factor (%)
PM PM Peak Period
D Peak Hour Directional Split
Indicates Direction of D
(d,t) Duals, TT-STs (%)
TIP: R-3830
WBS: 38887.1.1
COUNTY: Lee
DIVISION: 8
DATE: 07-18-11
PREPARED BY: Elisabeth Bray
LOCATION: NC 42 from US 421 to SR 1579 and SR 1570 from NC 42 to SR 1538
PROJECT: Widen to three lanes

Figure 3A


N
421 Byp
140
SR 1523
Rice Road
7
PM (2,1) 10 55
6
1
123
PM (4,2) 8 55
118
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PM (4,6) 11 65
14
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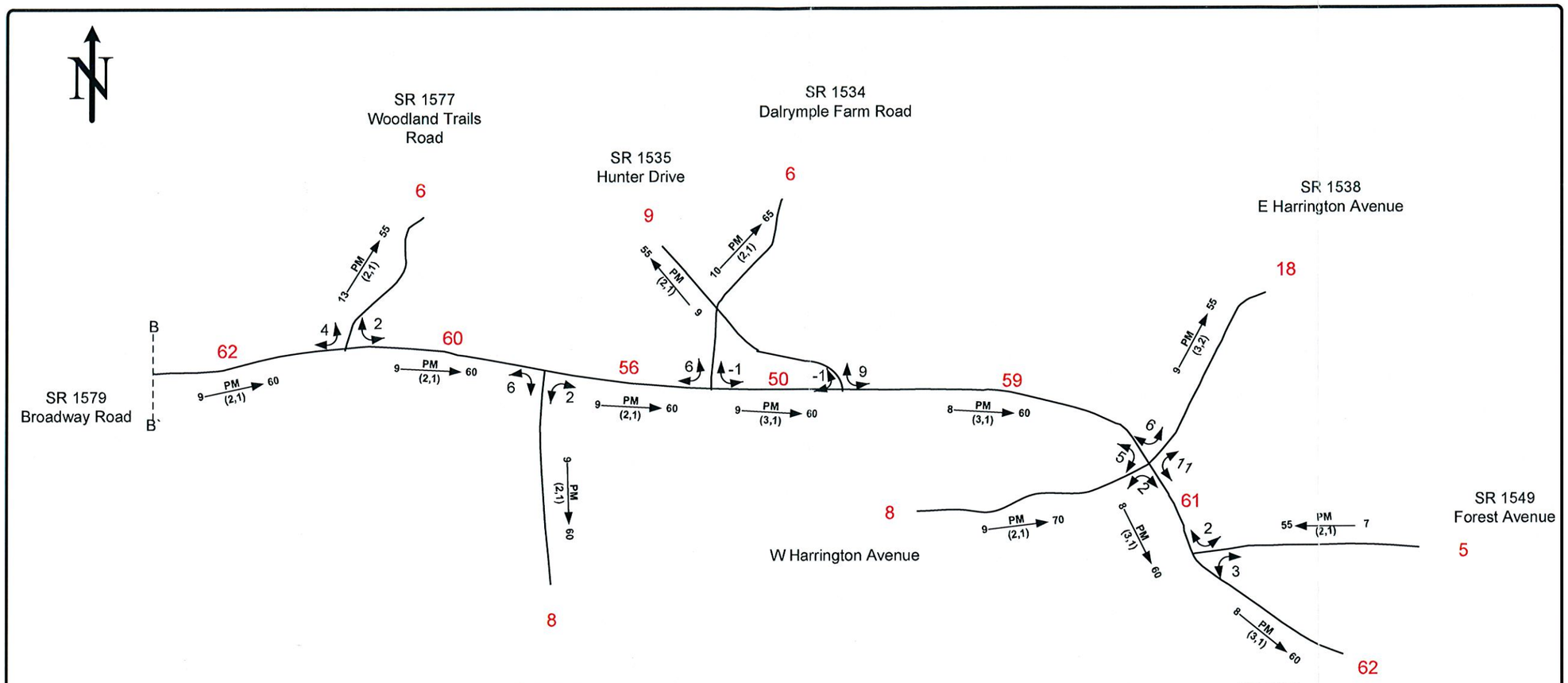
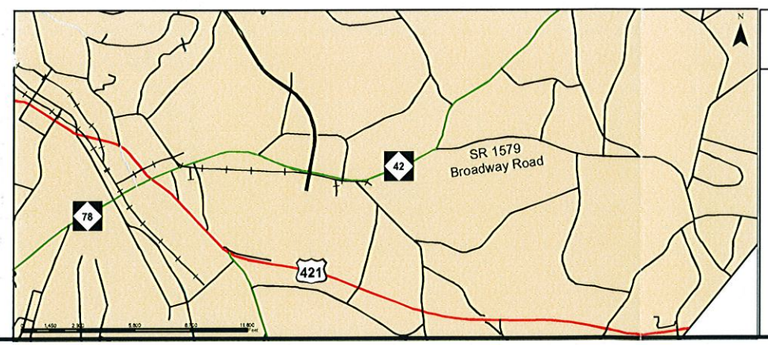
170
2
24
PM (3,2) 9 60
17
5
158
PM (3,2) 9 60
PM (3,5) 11 60
PM (3,2) 11 65
108
421 Byp
22 COTY
Driveway
SR 1523
Rice Road
26
PM (4,1) 12 55
18
8
126
136
PM (3,2) 9 60
46
12
102
87
PM (3,1) 9 60
27
2
62
PM (2,1) 10 60
29
B
B`
PM (2,1) 9 60
SR 1579
Broadway Road
PM (2,5) 9 55
58
SR 1529
Cox Mill Road
42
A
A`
SR 1579
Broadway Road
78
421
2011 AVERAGE ANNUAL DAILY TRAFFIC
BASE YEAR – No Build
LEGEND
K PM (d, t) D
No. of Vehicles Per Day (VPD) in 100s
1- Less than 50 VPD
X Movement Prohibited
..... Proposed Roadway
K Design Hour Factor (%)
PM PM Peak Period
D Peak Hour Directional Split
→ Indicates Direction of D
(d, t) Duals, TT-STs (%)
TIP: R-3830
WBS: 38887.1.1
COUNTY: Lee
DIVISION: 8
DATE: 07-18-11
PREPARED BY: Elisabeth Bray
LOCATION: NC 42 from US 421 to SR 1579 and SR 1570 from NC 42 to SR 1538
PROJECT: Widen to three lanes

Figure 3B





2011 AVERAGE ANNUAL DAILY TRAFFIC

BASE YEAR – No Build

LEGEND

K PM (d,t) D

###	No. of Vehicles Per Day (VPD) in 100s	K	Design Hour Factor (%)
1-	Less than 50 VPD	PM	PM Peak Period
x	Movement Prohibited	D	Peak Hour Directional Split
.....	Proposed Roadway	→	Indicates Direction of D
		(d,t)	Duals, TT-STs (%)

TIP: R-3830	**WBS:** 38887.1.1
COUNTY: Lee	DIVISION: 8
DATE: 07-18-11	
PREPARED BY: Elisabeth Bray	
LOCATION: NC 42 from US 421 to SR 1579 and SR 1570 from NC 42 to SR 1538	
PROJECT: Widen to three lanes	

Figure 3C

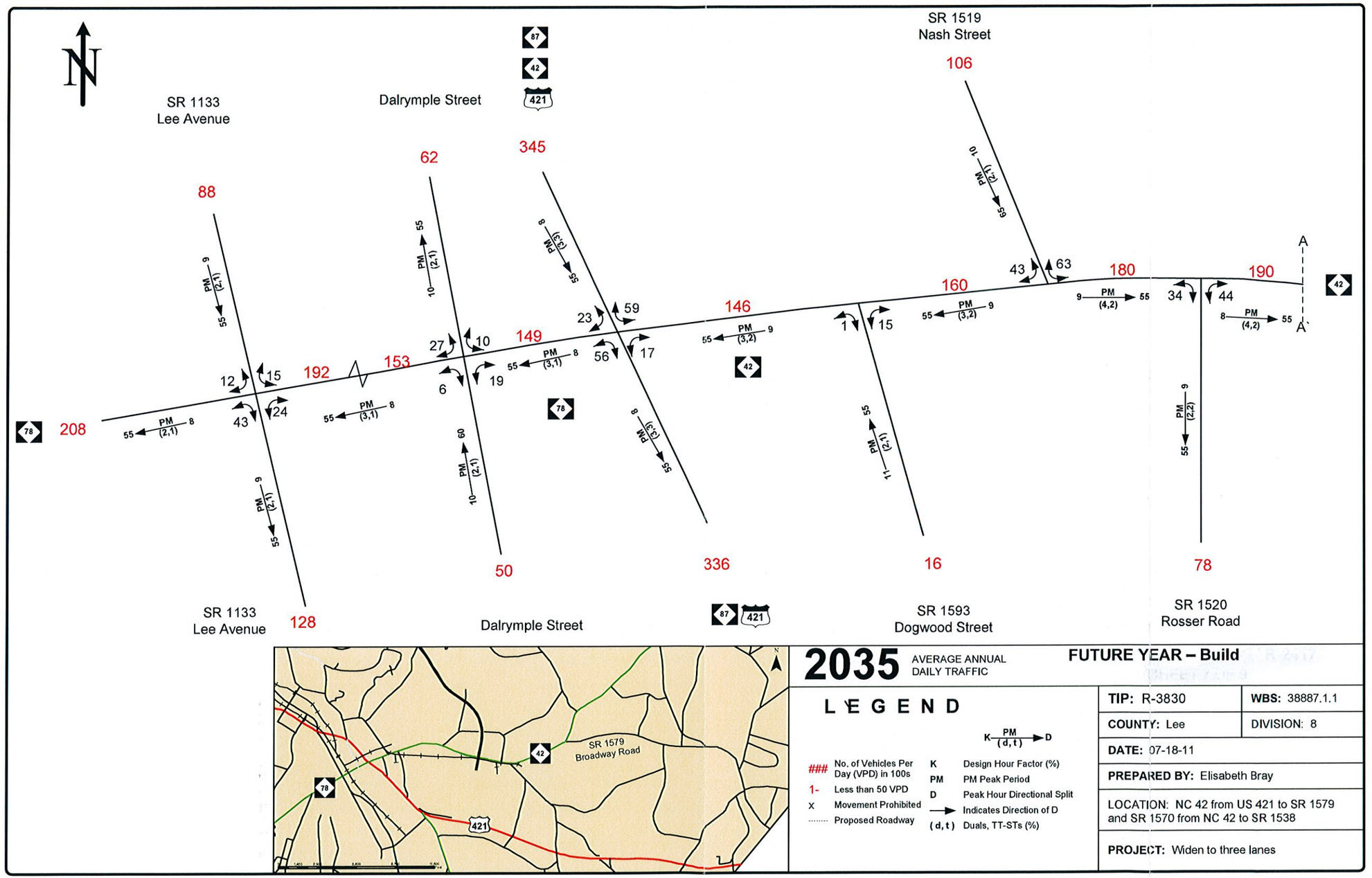
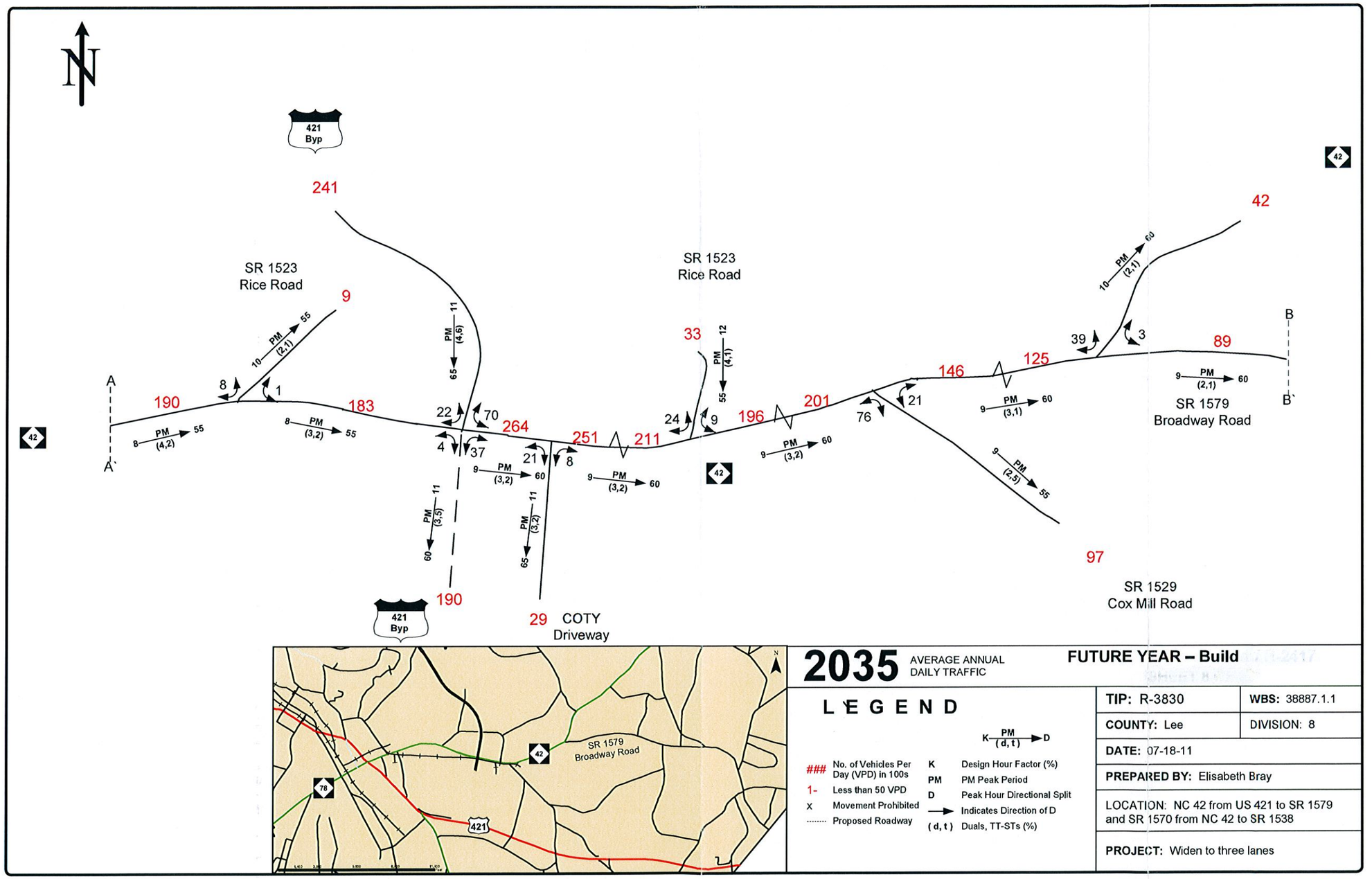

SR 1519
Nash Street
SR 1133
Lee Avenue
Dalrymple Street
106
62
345
88
208
192
153
149
146
160
180
190
128
50
336
16
78
SR 1133
Lee Avenue
Dalrymple Street
SR 1593
Dogwood Street
SR 1520
Rosser Road
SR 1579
Broadway Road
2035 AVERAGE ANNUAL DAILY TRAFFIC
FUTURE YEAR – Build
LEGEND
No. of Vehicles Per Day (VPD) in 100s
1- Less than 50 VPD
X Movement Prohibited
Proposed Roadway
K Design Hour Factor (%)
PM PM Peak Period
D Peak Hour Directional Split
Indicates Direction of D
(d,t) Duals, TT-STs (%)
TIP: R-3830
WBS: 38887.1.1
COUNTY: Lee
DIVISION: 8
DATE: 07-18-11
PREPARED BY: Elisabeth Bray
LOCATION: NC 42 from US 421 to SR 1579 and SR 1570 from NC 42 to SR 1538
PROJECT: Widen to three lanes

Figure 3D



2035 AVERAGE ANNUAL DAILY TRAFFIC

FUTURE YEAR – Build

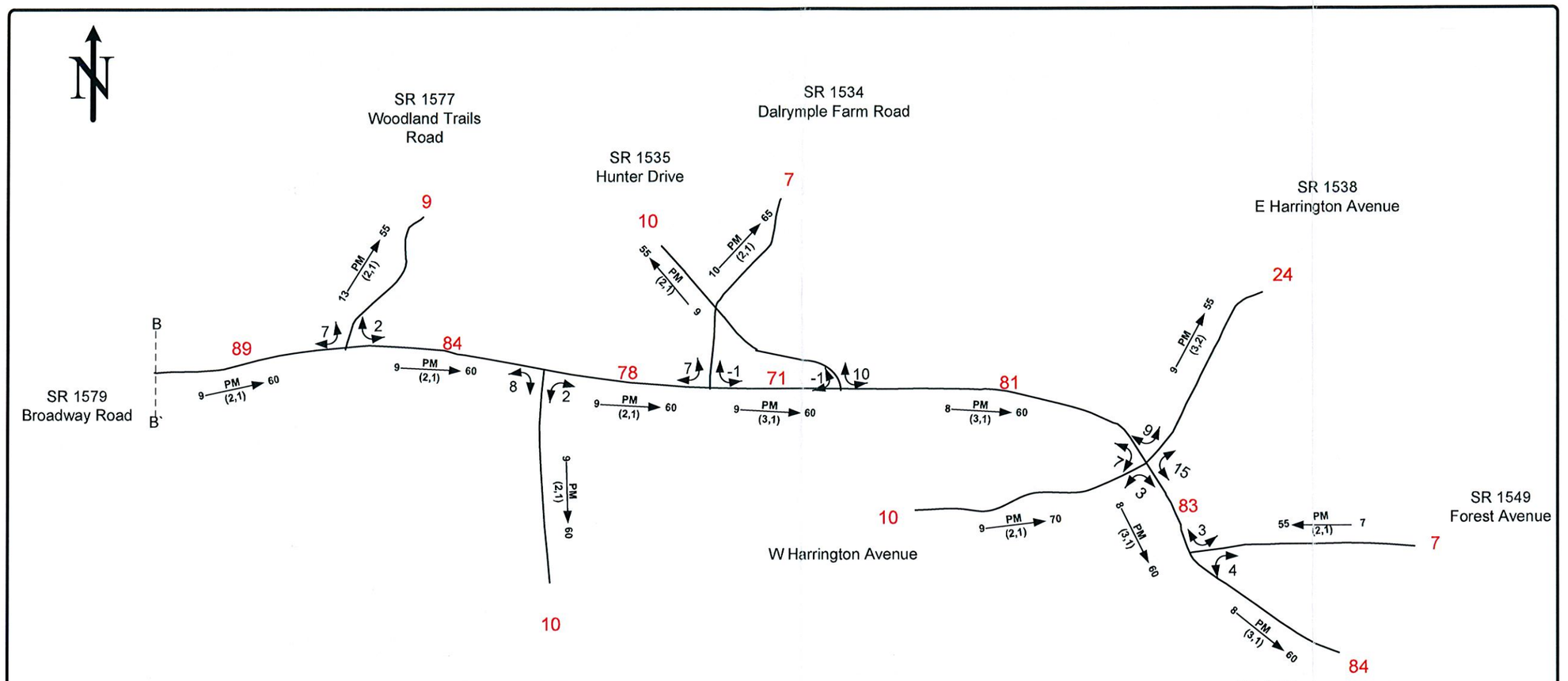
LEGEND

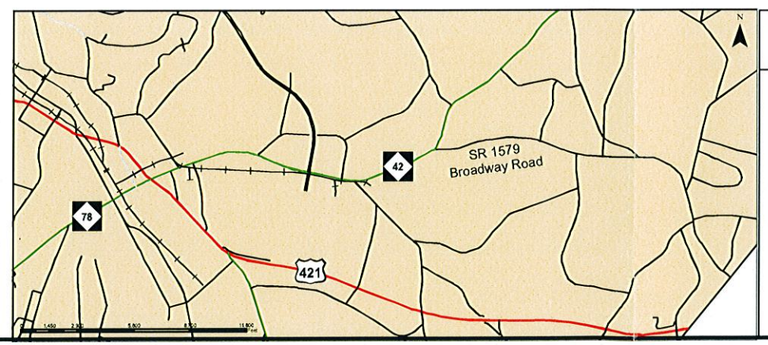
K PM (d, t) D

###	No. of Vehicles Per Day (VPD) in 100s	K	Design Hour Factor (%)
1-	Less than 50 VPD	PM	PM Peak Period
X	Movement Prohibited	D	Peak Hour Directional Split
.....	Proposed Roadway	→	Indicates Direction of D
		(d, t)	Duals, TT-STs (%)

TIP: R-3830	**WBS:** 38887.1.1
COUNTY: Lee	DIVISION: 8
DATE: 07-18-11	
PREPARED BY: Elisabeth Bray	
LOCATION: NC 42 from US 421 to SR 1579 and SR 1570 from NC 42 to SR 1538	
PROJECT: Widen to three lanes	

Figure 3E





2035 AVERAGE ANNUAL DAILY TRAFFIC — **FUTURE YEAR – Build**

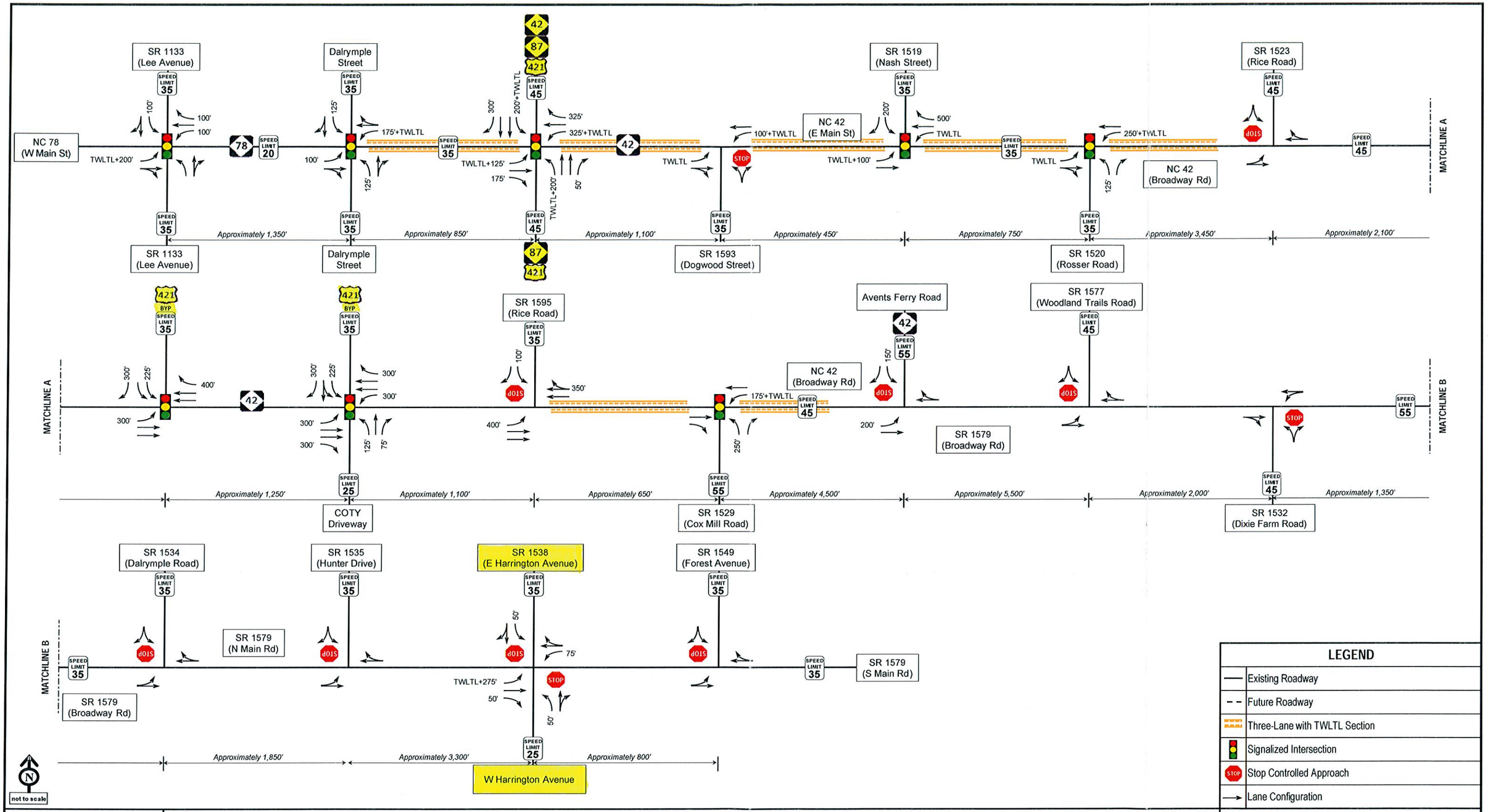
LEGEND

K PM (d,t) D

###	No. of Vehicles Per Day (VPD) in 100s	K	Design Hour Factor (%)
1-	Less than 50 VPD	PM	PM Peak Period
x	Movement Prohibited	D	Peak Hour Directional Split
.....	Proposed Roadway	→	Indicates Direction of D
		(d,t)	Duals, TT-STs (%)

TIP: R-3830	**WBS:** 38887.1.1
COUNTY: Lee	**DIVISION:** 8
DATE: 07-18-11	
PREPARED BY: Elisabeth Bray	
LOCATION: NC 42 from US 421 to SR 1579 and SR 1570 from NC 42 to SR 1538	
PROJECT: Widen to three lanes	

Figure 3F



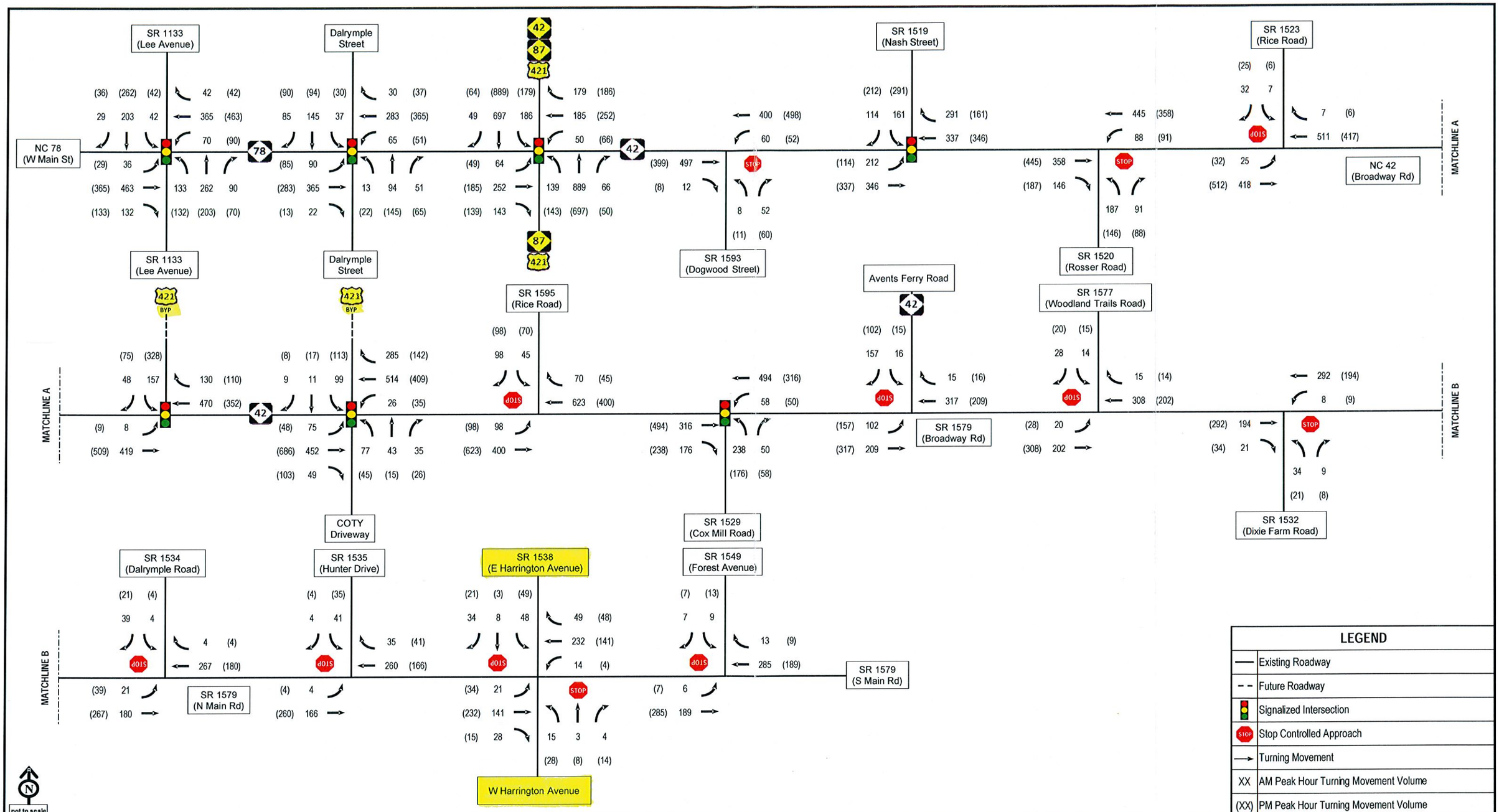
MARTIN ALEXIOU BRYSON

Base Year (2011) Lane Configurations and Traffic Control

NC 42-SR 1579 (Broadway Road) Improvements (TIP No. R-3830)

Lee County, NC

Figure 3G



LEGEND	
——	Existing Roadway
- -	Future Roadway
	Signalized Intersection
STOP	Stop Controlled Approach
→	Turning Movement
XX	AM Peak Hour Turning Movement Volume
(XX)	PM Peak Hour Turning Movement Volume

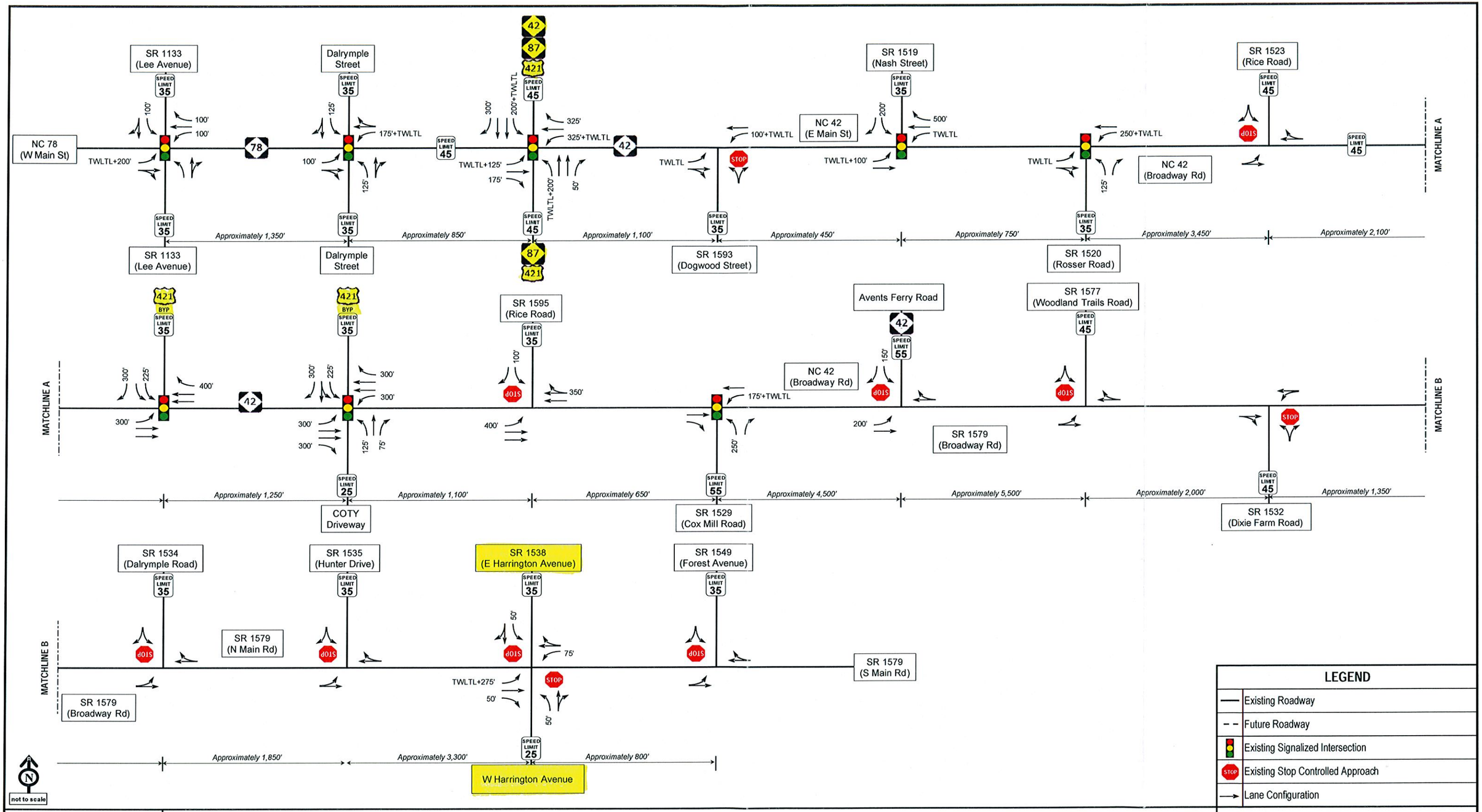
MARTIN ALEXIOU BRYSON

Base Year (2011) No-Build Peak Hour Turning Movement Volumes

NC 42-SR 1579 (Broadway Road) Improvements (TIP No. R-3830)

Lee County, NC

Figure 3H



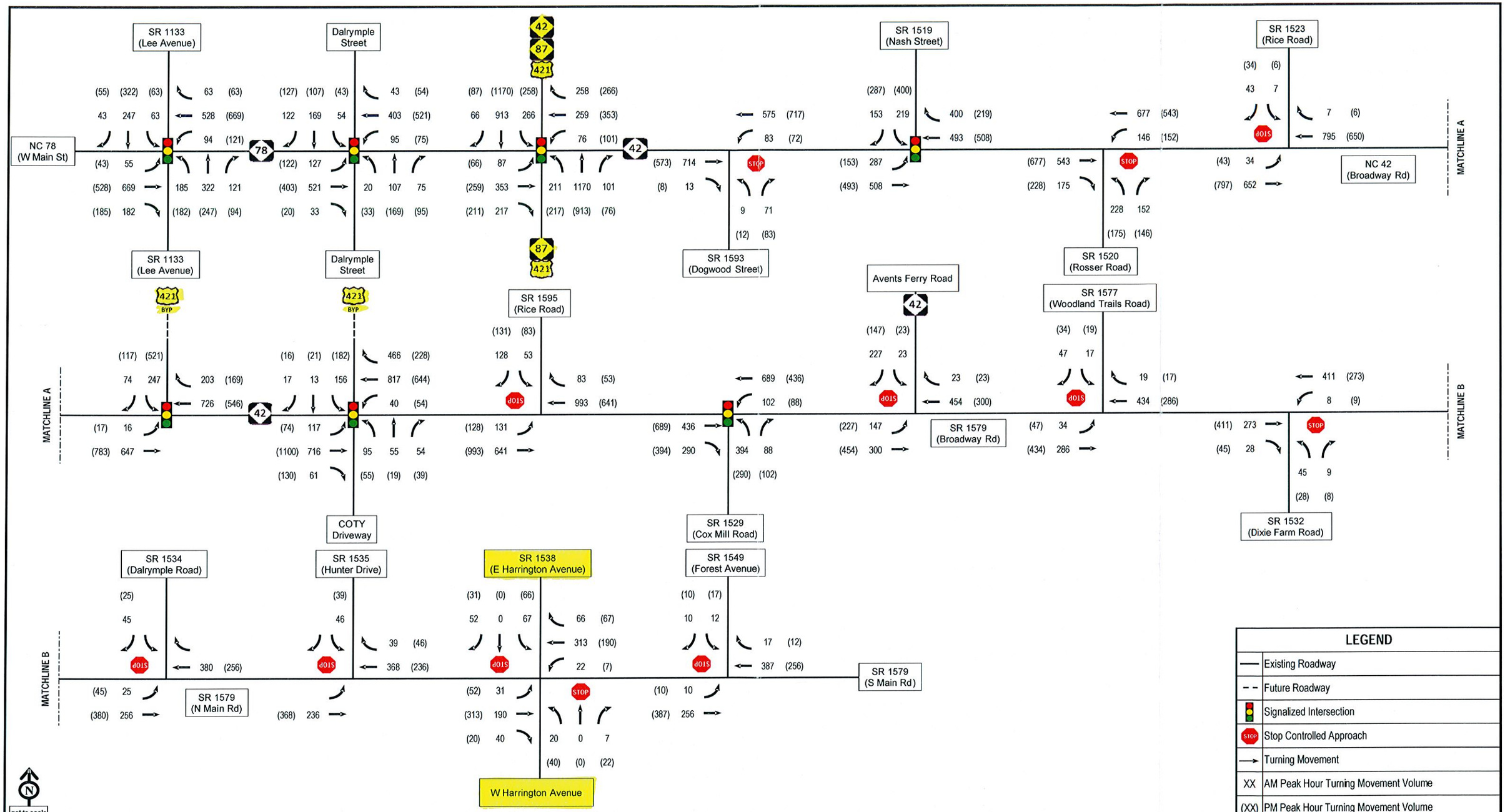
MARTIN ALEXIOU BRYSON

Design Year (2035) No-Build Lane Configurations and Traffic Control

NC 42-SR 1579 (Broadway Road) Improvements (TIP No. R-3830)

Lee County, NC

Figure 3I



LEGEND	
——	Existing Roadway
- -	Future Roadway
	Signalized Intersection
STOP	Stop Controlled Approach
→	Turning Movement
XX	AM Peak Hour Turning Movement Volume
(XX)	PM Peak Hour Turning Movement Volume

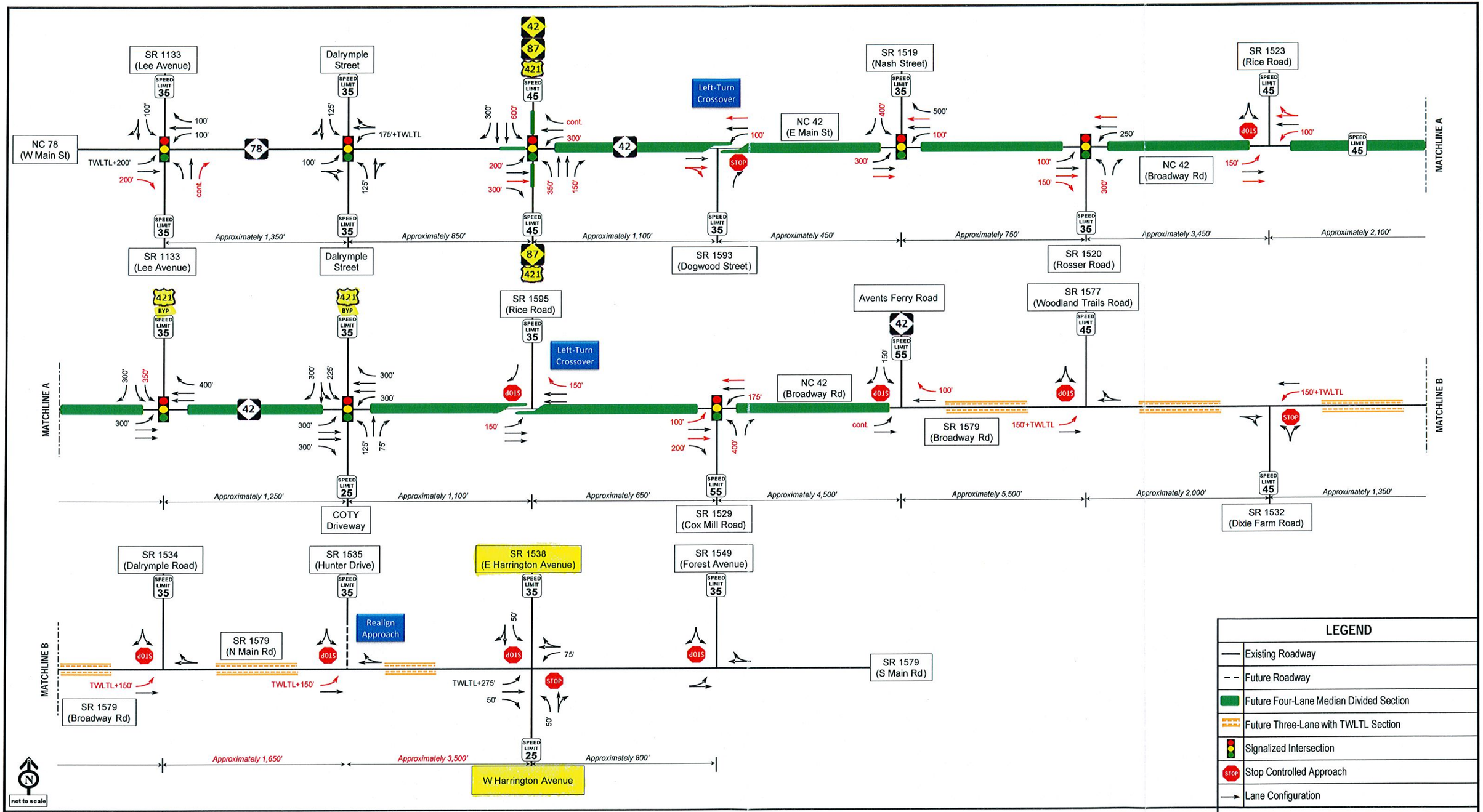
MARTIN ALEXIOU BRYSON

Design Year (2035) No-Build Peak Hour Turning Movement Volumes

NC 42-SR 1579 (Broadway Road) Improvements (TIP No. R-3830)

Lee County, NC

Figure 3J



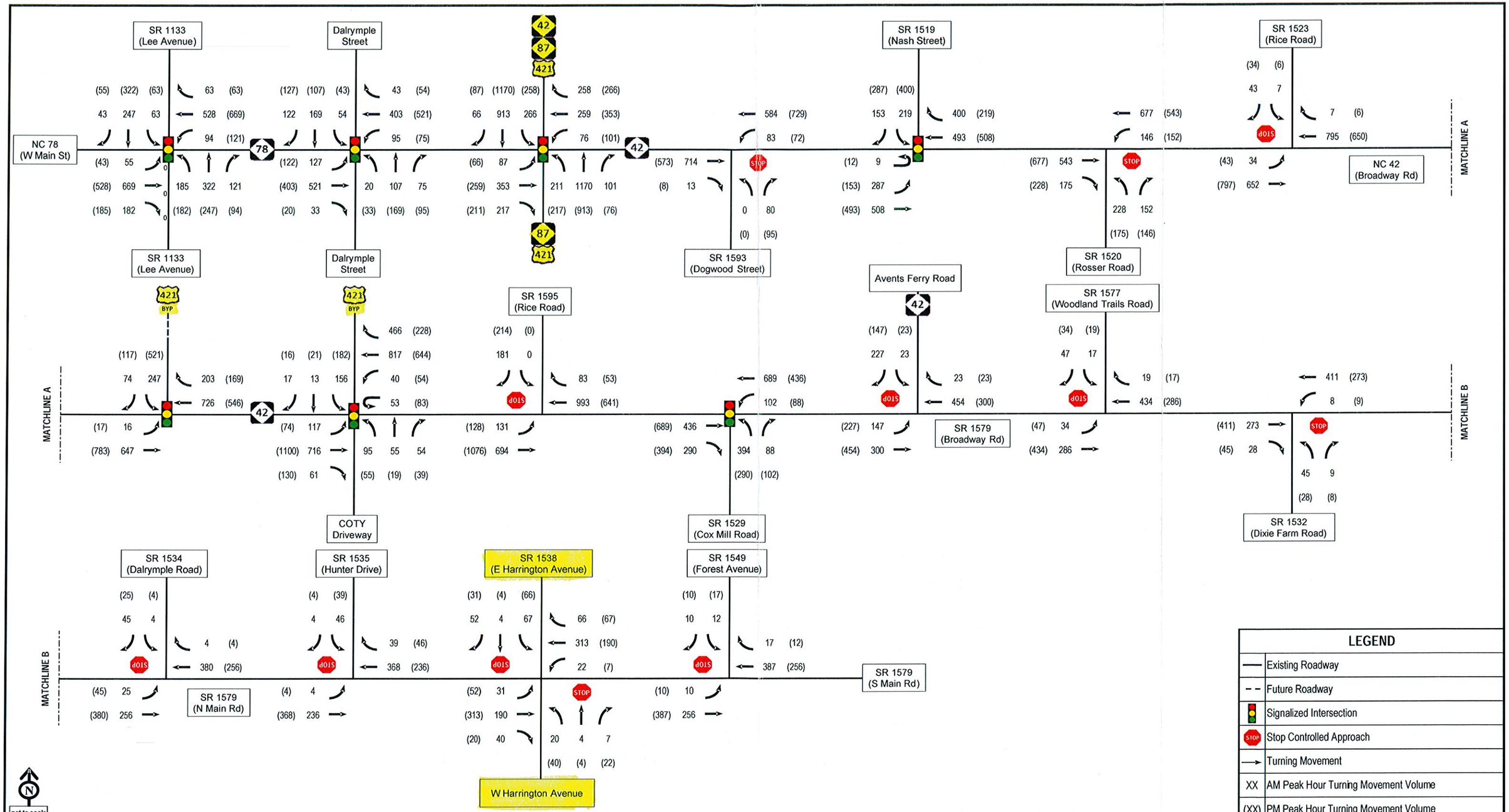
MARTIN ALEXIOU BRYSON

Design Year (2035) Build Lane Configurations and Traffic Control

NC 42-SR 1579 (Broadway Road) Improvements (TIP No. R-3830)

Lee County, NC

Figure 3K



LEGEND	
——	Existing Roadway
- -	Future Roadway
	Signalized Intersection
STOP	Stop Controlled Approach
→	Turning Movement
XX	AM Peak Hour Turning Movement Volume
(XX)	PM Peak Hour Turning Movement Volume

MARTIN ALEXIOU BRYSON

Design Year (2035) Build Peak Hour Turning Movement Volumes

NC 42-SR 1579 (Broadway Road) Improvements (TIP No. R-3830)

Lee County, NC

Figure 3L

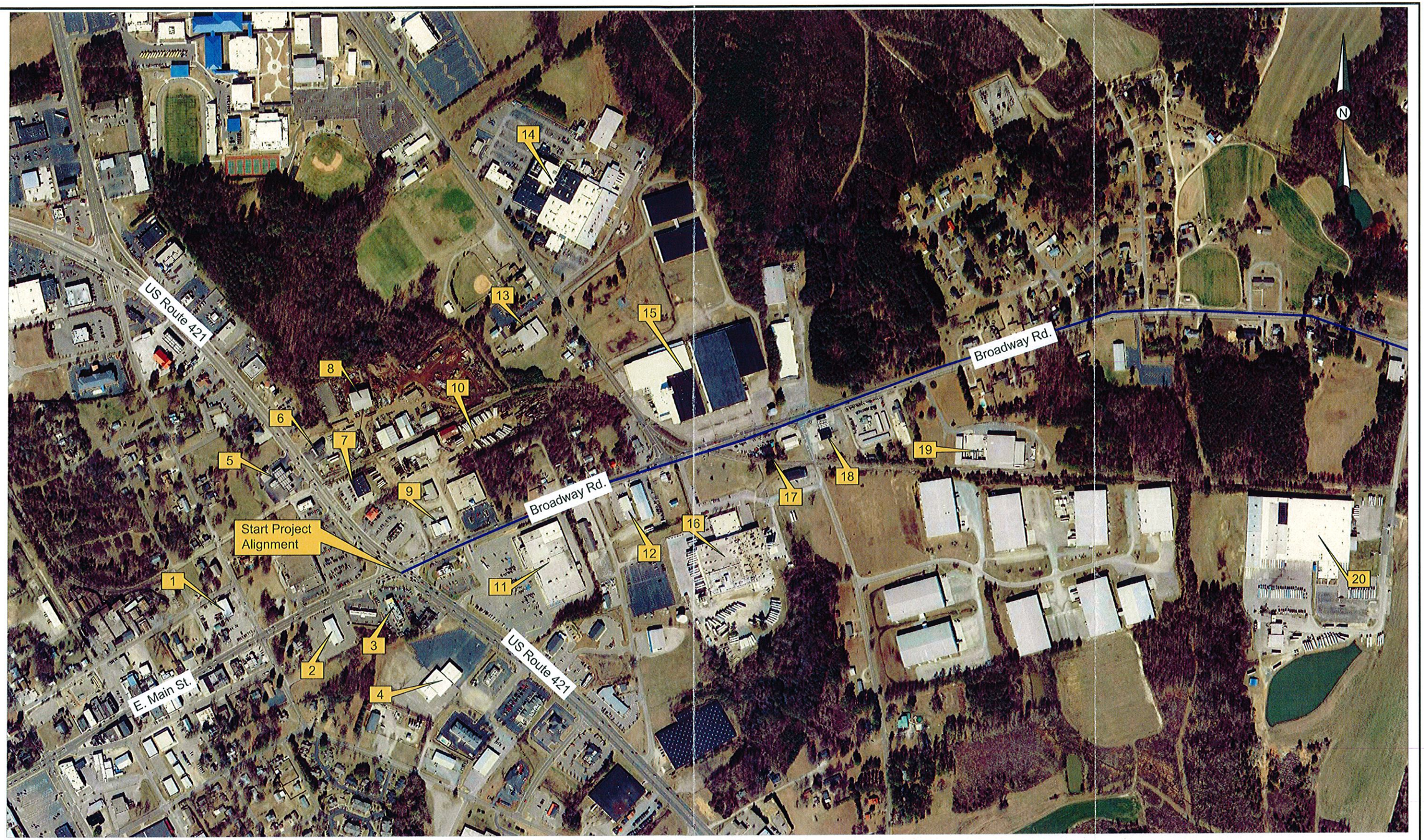
R-3830: Summary Level of Service (LOS) Results

Intersection and Approach	Traffic Control	Base Year (2011)								Design Year (2035) No-Build								Design Year (2035) Build							
		AM				PM				AM				PM				AM				PM			
		LOS	Delay	Queue[1]	Queue[2]	LOS	Delay	Queue[1]	Queue[2]	LOS	Delay	Queue[1]	Queue[2]	LOS	Delay	Queue[1]	Queue[2]	LOS	Delay	Queue[1]	Queue[2]	LOS	Delay	Queue[1]	Queue[2]
NC 78 (E Main Street) & SR 1133 (Lee Avenue)	Signalized	**D**	**40.0 sec**	-	-	**D**	**36.4 sec**	-	-	**F**	**85.4 sec**	-	-	**E**	**74.8 sec**	-	-	**D**	**54.9 sec**	-	-	**E**	**57.0 sec**	-	-
Eastbound		D	43.6 sec	603 ft	926 ft	D	40. sec	456 ft	902 ft	F	85.1 sec	1,278 ft	921 ft	E	66.3 sec	881 ft	926 ft	D	48.9 sec	915 ft	1,033 ft	D	36.4 sec	553 ft	1,084 ft
Westbound		C	22.8 sec	168 ft	371 ft	C	26.7 sec	409 ft	636 ft	D	49.5 sec	588 ft	1,409 ft	D	53.5 sec	804 ft	1,421 ft	D	45.7 sec	627 ft	1,219 ft	D	48.2 sec	836 ft	1,298 ft
Northbound		D	52.6 sec	418 ft	501 ft	D	37.9 sec	295 ft	281 ft	F	120.6 sec	771 ft	535 ft	F	94.3 sec	459 ft	589 ft	E	58.9 sec	430 ft	477 ft	E	68.8 sec	319 ft	660 ft
Southbound		D	39.3 sec	217 ft	260 ft	D	46.3 sec	321 ft	552 ft	F	92.9 sec	498 ft	555 ft	F	107.5 sec	562 ft	570 ft	F	80.9 sec	474 ft	679 ft	F	95.5 sec	550 ft	576 ft
NC 78 (E Main Street) & Dalrymple Street	Signalized	**C**	**23.1 sec**	-	-	**C**	**33.7 sec**	-	-	**D**	**36.5 sec**	-	-	**C**	**30.4 sec**	-	-	**D**	**36.5 sec**	-	-	**C**	**31.7 sec**	-	-
Eastbound		B	15.6 sec	133 ft	355 ft	C	23.6 sec	204 ft	354 ft	C	32.5 sec	513 ft	1,088 ft	C	20.8 sec	113 ft	393 ft	C	32.5 sec	513 ft	759 ft	C	23.4 sec	158 ft	423 ft
Westbound		B	15.3 sec	269 ft	322 ft	B	19.8 sec	217 ft	469 ft	C	29.3 sec	511 ft	740 ft	B	18.2 sec	527 ft	636 ft	C	29.1 sec	504 ft	539 ft	B	19.5 sec	532 ft	568 ft
Northbound		C	33.6 sec	127 ft	220 ft	E	58.8 sec	244 ft	374 ft	D	41.8 sec	198 ft	520 ft	E	55.2 sec	301 ft	287 ft	D	41.8 sec	198 ft	219 ft	E	55.2 sec	301 ft	398 ft
Southbound		D	41.6 sec	198 ft	331 ft	D	54.3 sec	215 ft	337 ft	D	52.9 sec	323 ft	528 ft	D	51.6 sec	266 ft	605 ft	D	52.9 sec	323 ft	418 ft	D	51.6 sec	266 ft	287 ft
NC 78 (E Main St) & NC 78/ NC 42/US 421 (Horner	Signalized	**C**	**32.2 sec**	-	-	**D**	**36.8 sec**	-	-	**D**	**53.6 sec**	-	-	**D**	**50.7 sec**	-	-	**D**	**48.0 sec**	-	-	**D**	**47.9 sec**	-	-
Eastbound		D	36.0 sec	288 ft	396 ft	D	38.6 sec	153 ft	197 ft	E	61.6 sec	522 ft	955 ft	D	51.9 sec	338 ft	374 ft	D	38.4 sec	217 ft	237 ft	D	46.2 sec	241 ft	292 ft
Westbound		C	28.7 sec	126 ft	249 ft	D	44.3 sec	265 ft	302 ft	D	36.1 sec	300 ft	361 ft	D	49.5 sec	501 ft	918 ft	D	43.9 sec	328 ft	461 ft	D	49.7 sec	479 ft	1,278 ft
Northbound		C	32.0 sec	381 ft	526 ft	C	34.4 sec	335 ft	395 ft	E	61.2 sec	688 ft	2,077 ft	D	49.4 sec	473 ft	1,385 ft	D	41.0 sec	555 ft	805 ft	D	47.6 sec	466 ft	1,306 ft
Southbound		C	32.3 sec	270 ft	421 ft	C	34.8 sec	435 ft	511 ft	D	48.8 sec	448 ft	1,830 ft	D	51.9 sec	670 ft	2,527 ft	E	63.3 sec	487 ft	2,043 ft	D	47.8 sec	657 ft	1,015 ft
NC 42 (E Main Street) & SR 1593 (Dogwood Street)	Unsignalized	B	12.7 sec	11 ft	74 ft	B	12.0 sec	11 ft	54 ft	C	17.5 sec	23 ft	140 ft	C	15.5 sec	23 ft	462 ft	B	10.5 sec	10 ft	53 ft	B	10.7 sec	13 ft	96 ft
NC 42 (E Main Street) & SR 1519 (Nash Street)	Signalized	**B**	**11.0 sec**	-	-	**B**	**18.8 sec**	-	-	**C**	**22.5 sec**	-	-	**C**	**25. sec**	-	-	**C**	**21.5 sec**	-	-	**C**	**27.2 sec**	-	-
Eastbound		A	2.6 sec	97 ft	205 ft	A	3.0 sec	31 ft	140 ft	B	19.0 sec	208 ft	404 ft	C	20.1 sec	199 ft	404 ft	B	13.8 sec	181 ft	388 ft	B	17.8 sec	226 ft	351 ft
Westbound		A	9.1 sec	168 ft	377 ft	A	9.8 sec	249 ft	308 ft	B	17.0 sec	501 ft	486 ft	B	14.9 sec	356 ft	720 ft	C	21.4 sec	251 ft	291 ft	C	28.7 sec	238 ft	318 ft
Southbound		C	32.4 sec	151 ft	214 ft	D	42.0 sec	313 ft	351 ft	D	43.4 sec	265 ft	462 ft	D	40.2 sec	429 ft	587 ft	D	38.5 sec	248 ft	283 ft	C	34.5 sec	391 ft	393 ft
NC 42 (E Main Street) & SR 1520 (Rosser Road)	Signalized	**B**	**14.0 sec**	-	-	**B**	**15.3 sec**	-	-	**C**	**26.1 sec**	-	-	**C**	**31.6 sec**	-	-	**B**	**16.4 sec**	-	-	**B**	**18.8 sec**	-	-
Eastbound		B	10.3 sec	365 ft	377 ft	A	8.6 sec	361 ft	550 ft	C	20.7 sec	752 ft	508 ft	C	26.6 sec	970 ft	813 ft	A	7.1 sec	126 ft	118 ft	B	12.0 sec	227 ft	401 ft
Westbound		A	4.0 sec	90 ft	220 ft	A	3.6 sec	59 ft	176 ft	B	19.4 sec	263 ft	439 ft	C	23.5 sec	243 ft	1,620 ft	B	12.9 sec	168 ft	224 ft	B	17.0 sec	174 ft	251 ft
Northbound		D	39.8 sec	173 ft	222 ft	E	55.9 sec	186 ft	251 ft	D	50.7 sec	306 ft	441 ft	E	63.6 sec	284 ft	630 ft	D	41.7 sec	253 ft	285 ft	D	42.2 sec	207 ft	286 ft
NC 42 (Broadway Road) & SR 1523 (Rice Road)	Unsignalized	B	12.8 sec	7 ft	38 ft	B	11.9 sec	5 ft	33 ft	C	17.8 sec	15 ft	58 ft	C	15.2 sec	9 ft	80 ft	C	15.6 sec	12 ft	38 ft	B	14.3 sec	9 ft	81 ft
NC 42 (Broadway Road) & US 421 SB Ramps	Signalized	**A**	**7.8 sec**	-	-	**B**	**17.7 sec**	-	-	**B**	**11.3 sec**	-	-	**B**	**17.8 sec**	-	-	**A**	**9.9 sec**	-	-	**B**	**15.3 sec**	-	-
Eastbound		A	2.4 sec	23 ft	96 ft	A	4.7 sec	108 ft	181 ft	A	3.5 sec	95 ft	157 ft	A	9.4 sec	251 ft	331 ft	A	2.3 sec	20 ft	177 ft	A	3.9 sec	102 ft	378 ft
Westbound		A	0.9 sec	21 ft	235 ft	A	2.0 sec	22 ft	269 ft	A	2.9 sec	3 ft	414 ft	A	2.3 sec	30 ft	392 ft	A	0.9 sec	33 ft	363 ft	A	2.0 sec	30 ft	117 ft
Southbound		D	39.5 sec	76 ft	112 ft	D	52.2 sec	180 ft	277 ft	D	52.0 sec	142 ft	154 ft	D	45.5 sec	256 ft	538 ft	D	51.6 sec	141 ft	197 ft	D	44.5 sec	254 ft	302 ft
NC 42 (Broadway Road) & US 421 NB Ramps	Signalized	**B**	**16.9 sec**	-	-	**B**	**13.3 sec**	-	-	**C**	**26.2 sec**	-	-	**C**	**20.7 sec**	-	-	**C**	**25.6 sec**	-	-	**C**	**26.2 sec**	-	-
Eastbound		B	11.3 sec	148 ft	172 ft	A	5.3 sec	159 ft	216 ft	B	18.2 sec	188 ft	323 ft	B	15.1 sec	309 ft	390 ft	C	22.6 sec	200 ft	345 ft	C	24.3 sec	489 ft	411 ft
Westbound		B	13.9 sec	189 ft	204 ft	A	8.7	103 ft	110 ft	C	23.3 sec	432 ft	456 ft	B	16.5 sec	204 ft	305 ft	C	20.7 sec	285 ft	415 ft	B	19.1 sec	187 ft	218 ft
Northbound		D	37.2 sec	88 ft	152 ft	D	51.9 sec	77 ft	106 ft	D	52.4 sec	137 ft	135 ft	D	48.2 sec	87 ft	133 ft	D	50.5 sec	136 ft	171 ft	D	46.6 sec	87 ft	113 ft
Southbound		D	38.7 sec	72 ft	127 ft	E	56.3 sec	105 ft	112 ft	E	56.4 sec	130 ft	155 ft	E	57.9 sec	153 ft	172 ft	D	48.5 sec	121 ft	194 ft	E	56.7 sec	153 ft	179 ft
NC 42 (Broadway Road) & SR 1595 (Rice Road)	Unsignalized	C	20.1 sec	31 ft	74 ft	C	18.5 sec	37 ft	143 ft	F	88.9 sec	123 ft	983 ft	F	53.2 sec	121 ft	362 ft	B	13.0 sec	33 ft	175 ft	B	12.8 sec	38 ft	87 ft
NC 42 (Broadway Road) & SR 1529 (Cox Mill Road)	Signalized	**B**	**15.0 sec**	-	-	**B**	**13.7 sec**	-	-	**C**	**26.1 sec**	-	-	**C**	**20.8 sec**	-	-	**B**	**18.7 sec**	-	-	**B**	**14.0 sec**	-	-
Eastbound		A	8.9 sec	132 ft	224 ft	A	5.4 sec	135 ft	268 ft	B	14.2 sec	404 ft	359 ft	B	10.9 sec	180 ft	500 ft	A	9.1 sec	104 ft	170 ft	A	5.6 sec	89 ft	242 ft
Westbound		A	9.1 sec	245 ft	321 ft	A	5.5 sec	132 ft	180 ft	C	26.0 sec	599 ft	570 ft	B	19.1 sec	223 ft	400 ft	B	14.8 sec	244 ft	331 ft	A	9.0 sec	117 ft	157 ft
Northbound		D	36.8 sec	201 ft	293 ft	D	52.3 sec	212 ft	256 ft	D	44.2 sec	406 ft	505 ft	D	50.2 sec	336 ft	428 ft	D	39.4 sec	370 ft	470 ft	D	43.8 sec	303 ft	309 ft
NC 42 (Broadway Road) & NC 42 (Avents Ferry Road)	Unsignalized	B	12.5 sec	25 ft	58 ft	B	11.5 sec	12 ft	49 ft	C	17.8 sec	58 ft	97 ft	C	15.5 sec	23 ft	59 ft	C	16.2 sec	57 ft	66 ft	B	12.7 sec	22 ft	70 ft
NC 42 (Broadway Road) & SR 1577 (Woodland Trails Rd)	Unsignalized	B	11.7 sec	6 ft	72 ft	B	11.6 sec	5 ft	36 ft	B	14.1 sec	13 ft	52 ft	B	13.8 sec	11 ft	78 ft	B	12.4 sec	11 ft	79 ft	B	11.6 sec	8 ft	53 ft
NC 42 (Broadway Road) & SR 1532 (Dixie Farm Road)	Unsignalized	B	12.5 sec	7 ft	50 ft	B	12.4 sec	5 ft	34 ft	C	16.0 sec	14 ft	70 ft	C	15.5 sec	9 ft	50 ft	B	12.0 sec	9 ft	50 ft	B	12.0 sec	6 ft	67 ft
SR 1579 (Broadway Road) & SR 1534 (Dalrymple Road)	Unsignalized	B	10.5 sec	5 ft	54 ft	B	10.1 sec	3 ft	41 ft	B	11.2 sec	6 ft	64 ft	A	10.0 sec	3 ft	39 ft	B	11.3 sec	7 ft	52 ft	B	10.3 sec	4 ft	54 ft
SR 1579 (N. Main Street) & SR 1535 (Hunter Drive)	Unsignalized	B	12.3 sec	8 ft	49 ft	B	12.2 sec	6 ft	44 ft	C	15.0 sec	11 ft	102 ft	B	14.9 sec	9 ft	47 ft	B	11.7 sec	8 ft	92 ft	B	11.5 sec	6 ft	54 ft
SR 1579 (N. Main Street) & W. Harrington Avenue	Unsignalized	B	11.1 sec	2 ft	49 ft	B	11.0 sec	4 ft	44 ft	B	12.3 sec	4 ft	59 ft	B	12.2 sec	8 ft	47 ft	B	12.3 sec	4 ft	41 ft	B	12.2 sec	8 ft	44 ft
Westbound		B	11.0 sec	7 ft	57 ft	B	11.2 sec	8 ft	50 ft	B	12.3 sec	13 ft	117 ft	B	12.7 sec	14 ft	51 ft	B	12.3 sec	13 ft	52 ft	B	12.7 sec	14 ft	91 ft
SR 1579 (S. Main Street) & Forest Avenue	Unsignalized	B	11.5 sec	2 ft	50 ft	B	11.5 sec	3 ft	32 ft	B	13.3 sec	4 ft	38 ft	B	13.3 sec	5 ft	41 ft	B	13.3 sec	4 ft	51 ft	B	13.3 sec	5 ft	52 ft

Queue[1] = *Synchro* 95th Percentile Queue on each Approach

Queue[2] = Maximum *SimTraffic* Queue on each Approach

Figure 3M



GRAPHIC SCALE
500 0 500 1000

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PROJECT NO	20152405.001A
DRAWN:	SEPT 2014
DRAWN BY:	AB
CHECKED BY:	TO
FILE NAME:	Century_9_093014_base.dwg

LAYOUT OF SITE EXTENT
R-3830
WBS ELEMENT 38887.1.

NC 42 from US 421 to SR 1579
SANFORD
LEE COUNTY
NORTH CAROLINA

FIGURE
4A

PLOTTED: 30 Sep 2014, 11:35am, tbenton

ATTACHED IMAGES: Images: sanford_z1.jpg Images: sanford_z2.jpg Images: sanford_z3.jpg
ATTACHED XREFS:
PLEASANTON, CA CAD FILE: Z:\CAD\ LAYOUT: Sheet 2

GRAPHIC SCALE
500 0 500 1000

KLEINFELDER
Bright People. Right Solutions.
www.kleinfelder.com

PROJECT NO	20152405.001A
DRAWN:	SEPT 2014
DRAWN BY:	AB
CHECKED BY:	TO
FILE NAME:	Century_9_093014_base.dwg

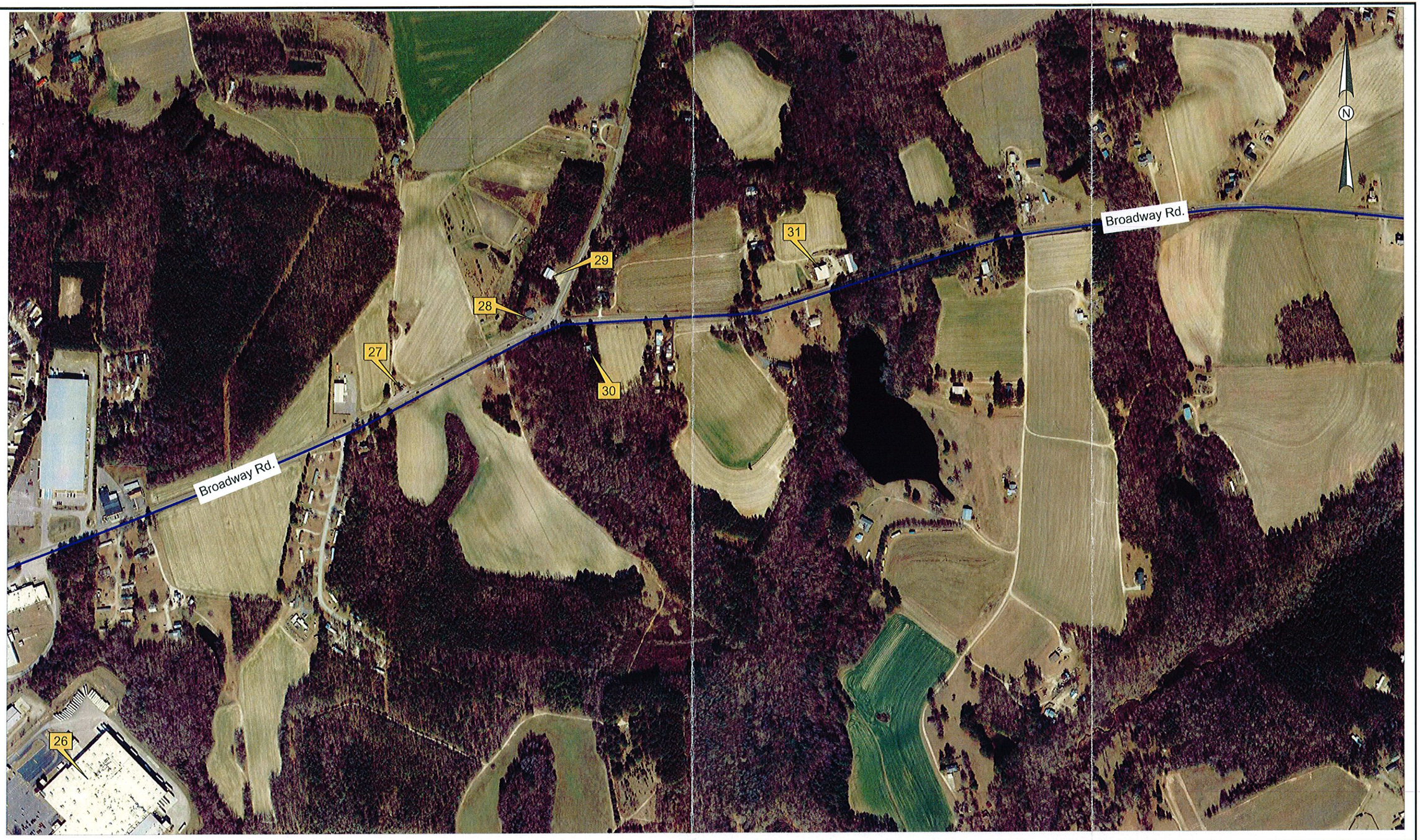
LAYOUT OF SITE EXTENT
R-3830
WBS ELEMENT 38887.1.

NC 42 from US 421 to SR 1579
SANFORD
LEE COUNTY
NORTH CAROLINA

FIGURE
4B

PLOTTED: 30 Sep 2014, 11:35am, tbenton

ATTACHED IMAGES: Images: sanford_z1.jpg Images: sanford_z2.jpg Images: sanford_z3.jpg
ATTACHED XREFS:
PLEASANTON, CA CAD FILE: Z:\CAD\ LAYOUT: Sheet 3



GRAPHIC SCALE
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PROJECT NO:	20152405.001A
DRAWN:	SEPT 2014
DRAWN BY:	AB
CHECKED BY:	TO
FILE NAME:	Century_9_093014_base.dwg

LAYOUT OF SITE EXTENT
R-3830
WBS ELEMENT 38887.1.

NC 42 from US 421 to SR 1579
SANFORD
LEE COUNTY
NORTH CAROLINA

FIGURE
4C

PLOTTED: 30 Sep 2014, 11:36am, tbenton

ATTACHED IMAGES: Images: sanford_z1.jpg Images: sanford_z2.jpg Images: sanford_z3.jpg
ATTACHED XREFS:
PLEASANTON, CA CAD FILE: Z:\CAD\ LAYOUT:. Sheet 4

GRAPHIC SCALE
500 0 500 1000

KLEINFELDER
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www.kleinfelder.com

PROJECT NO	20152405.001A
DRAWN:	SEPT 2014
DRAWN BY:	AB
CHECKED BY:	TO
FILE NAME:	Century_9_093014_base.dwg

LAYOUT OF SITE EXTENT
R-3830
WBS ELEMENT 38887.1.

NC 42 from US 421 to SR 1579
SANFORD
LEE COUNTY
NORTH CAROLINA

FIGURE
4D

PLOTTED: 30 Sep 2014, 11:36am, tbenton

ATTACHED IMAGES: Images: sanford_z1.jpg Images: sanford_z2.jpg Images: sanford_z3.jpg
ATTACHED XREFS:
PLEASANTON, CA CAD FILE: Z:\CAD\ LAYOUT: Sheet 5

GRAPHIC SCALE
500 0 500 1000

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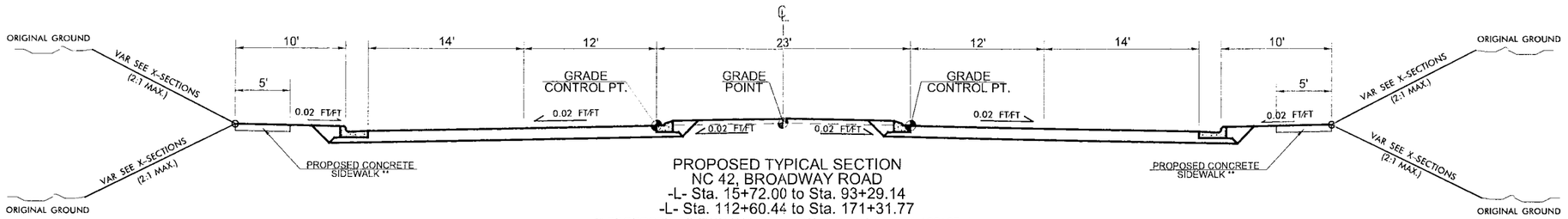
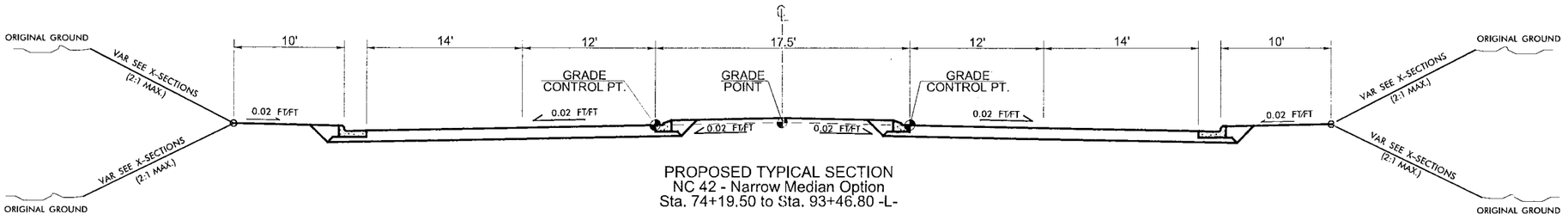
PROJECT NO	20152405.001A
DRAWN:	SEPT 2014
DRAWN BY:	AB
CHECKED BY:	TO
FILE NAME:	Century_9_093014_base.dwg

LAYOUT OF SITE EXTENT
R-3830
WBS ELEMENT 38887.1.
NC 42 from US 421 to SR 1579
SANFORD
LEE COUNTY
NORTH CAROLINA

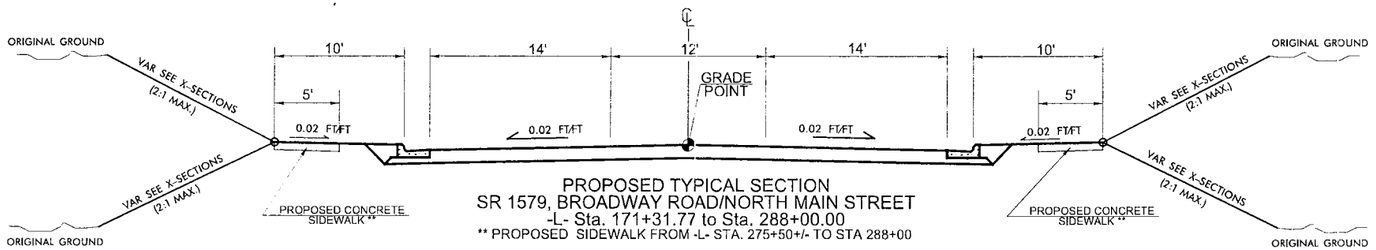
FIGURE
4E



PROPOSED TYPICAL SECTION
NC 42, BROADWAY ROAD
-L- Sta. 15+72.00 to Sta. 93+29.14
-L- Sta. 112+60.44 to Sta. 171+31.77
** PROPOSED SIDEWALK FROM -L- STA. 15+72+/- TO STA 136+07+/-



PROPOSED TYPICAL SECTION
NC 42 - Narrow Median Option
Sta. 74+19.50 to Sta. 93+46.80 -L-



PROPOSED TYPICAL SECTION
SR 1579, BROADWAY ROAD/NORTH MAIN STREET
-L- Sta. 171+31.77 to Sta. 288+00.00
** PROPOSED SIDEWALK FROM -L- STA. 275+50+/- TO STA 288+00

NC 42 SR 1579 (Broadway Road) Improvements from US 421 (Horner Blvd.) in Sanford to SR 1538 (East Harrington Ave.) in Broadway, Lee County
TIP Project R-3830

Figure 5

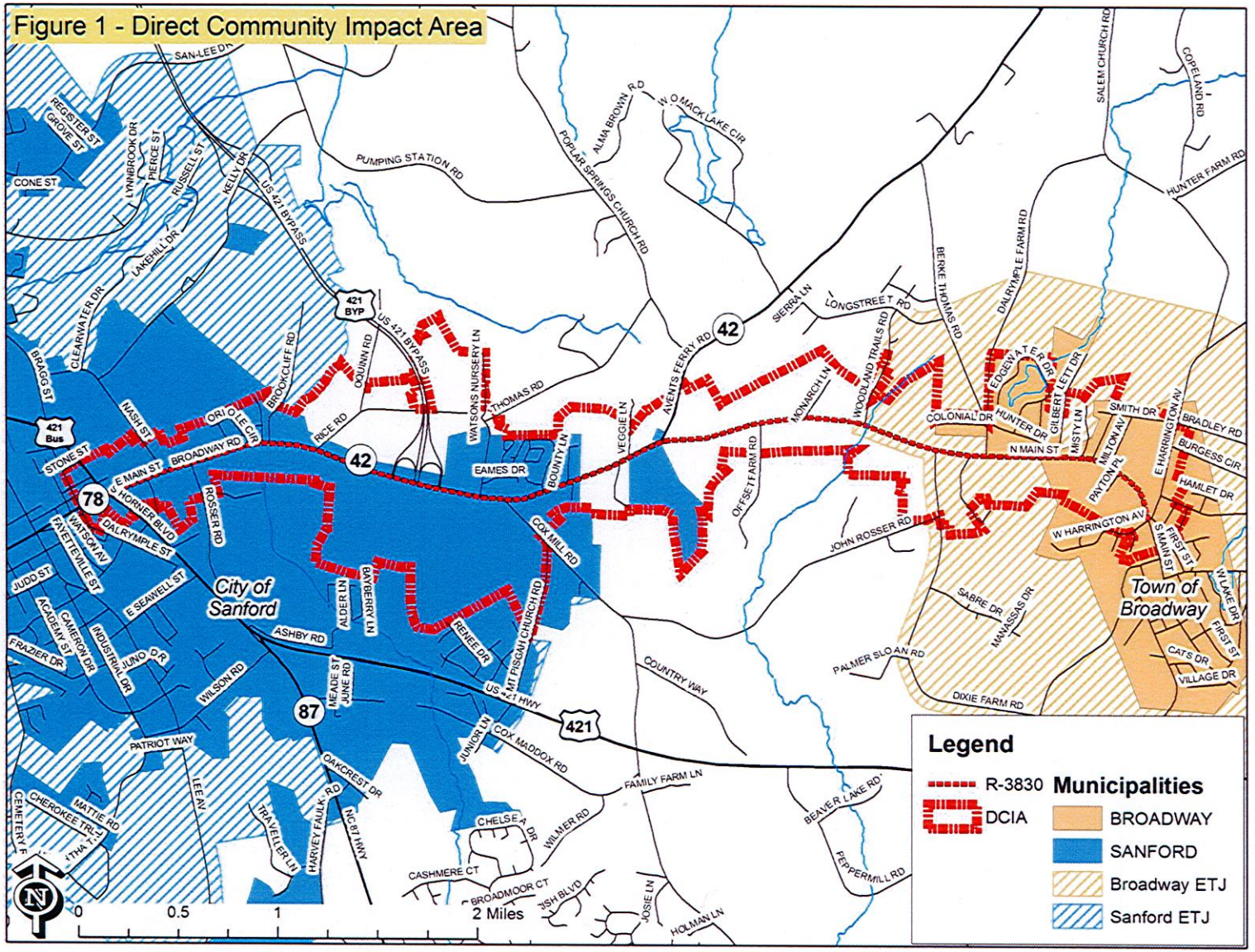
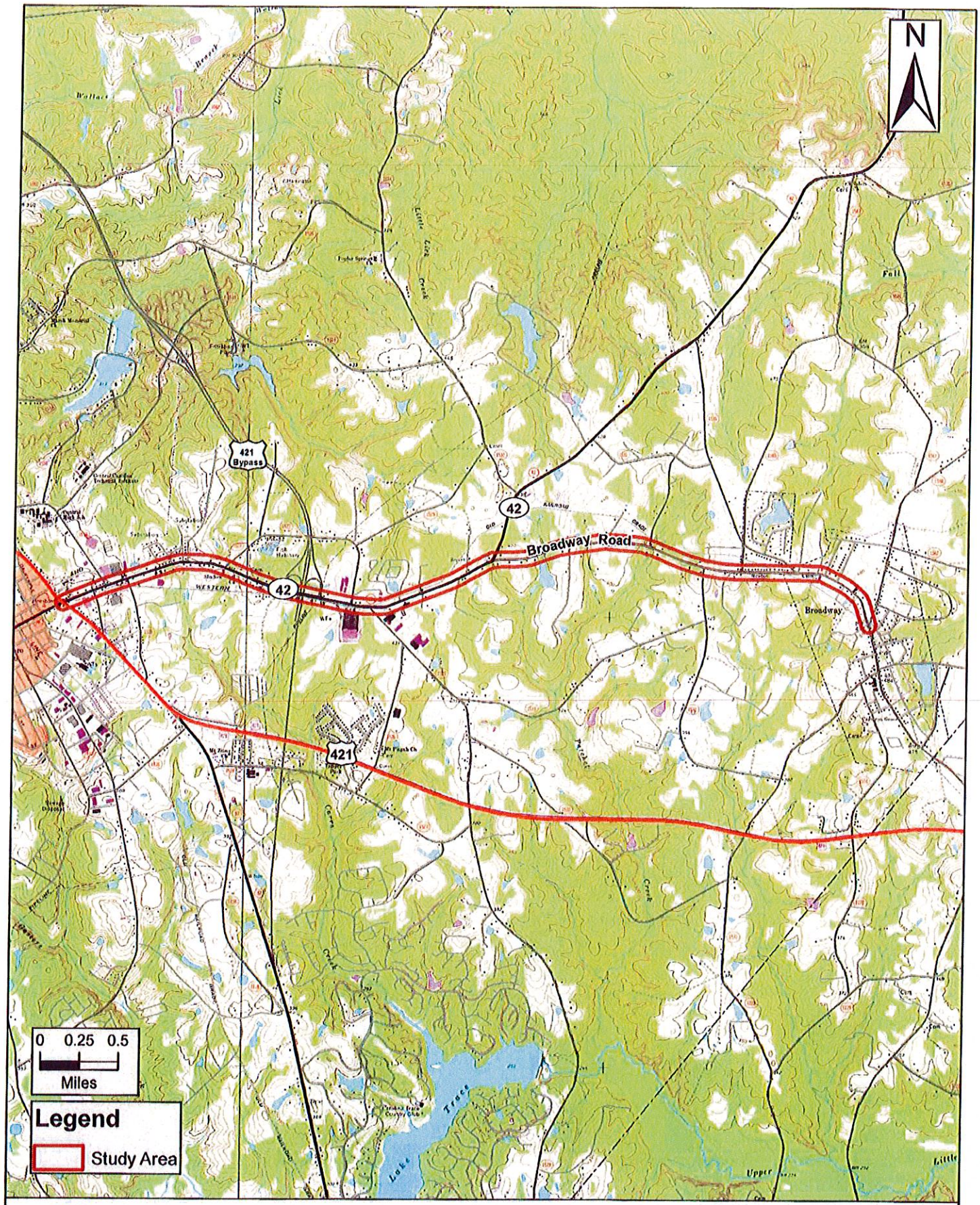


Figure 1 - Direct Community Impact Area
City of Sanford
Town of Broadway
Legend
R-3830
DCIA
Municipalities
BROADWAY
SANFORD
Broadway ETJ
Sanford ETJ
0
0.5
1
2 Miles
N
SAN-LEE DR
REGISTER ST
GROVE ST
CONE ST
LYNNBROOK DR
PIERCE ST
RUSSELL ST
KELLY DR
US 421 BYPASS
LAKEHILL DR
CLEARWATER DR
BRAGG ST
421 BYP
421 Bus
NASH ST
ORIOLE CIR
BROOKCLIFF RD
STONE ST
BROADWAY RD
E MAIN ST
HORNER BLVD
DALRYMPLE ST
FAYETTEVILLE ST
WATSON AV
JUDD ST
E SEAWELL ST
ACADEMY ST
CAMERON DR
INDUSTRIAL DR
JUNO DR
FRAZIER DR
WILSON RD
PATRIOT WAY
LEE AV
CHEROKEE TRL
MATTIE RD
CEMETERY R
THA T
ROSSER RD
RICE RD
OQUINN RD
PUMPING STATION RD
WATSONS NURSERY LN
THOMAS RD
EAMES DR
BOUNTY LN
VEGGIE LN
ALDER LN
BAYBERRY LN
ASHBY RD
MEADE ST
JUNE RD
RENEE DR
MT PISGAH CHURCH RD
COX MILL RD
OFFSETFARM RD
AVENTS FERRY RD
MONARCH LN
WOODLAND TRAILS RD
SIERRA LN
LONGSTREET RD
POPLAR SPRINGS CHURCH RD
ALMA BROWN RD
N O MACK LAKE CIR
BERKE THOMAS RD
DALRYMPLE FARM RD
SALEM CHURCH RD
COPELAND RD
HUNTER FARM RD
EDGEWATER DR
GILBERT LETT DR
MISTY LN
COLONIAL DR
HUNTER DR
SMITH DR
N MAIN ST
MILTON AV
PAYTON PL
E HARRINGTON AV
BRADLEY RD
BURGESS CIR
HAMLET DR
W HARRINGTON AV
S MAIN ST
FIRST ST
W LAKE DR
JOHN ROSSER RD
SABRE DR
MANASSAS DR
CATS DR
VILLAGE DR
PALMER SLOAN RD
DIXIE FARM RD
COUNTRY WAY
US 421 HWY
COX MADDOX RD
JUNIOR LN
FAMILY FARM LN
OAKCREST DR
HARVEY FAULK RD
NC 87 HWY
TRAVELLER LN
CHELSEA DR
WILMER RD
CASHMERE CT
BROADMOOR CT
JOSIE LN
HOLMAN LN
BEAVER LAKE RD
PEPPERMILL RD
42
78
87
421

Figure 6

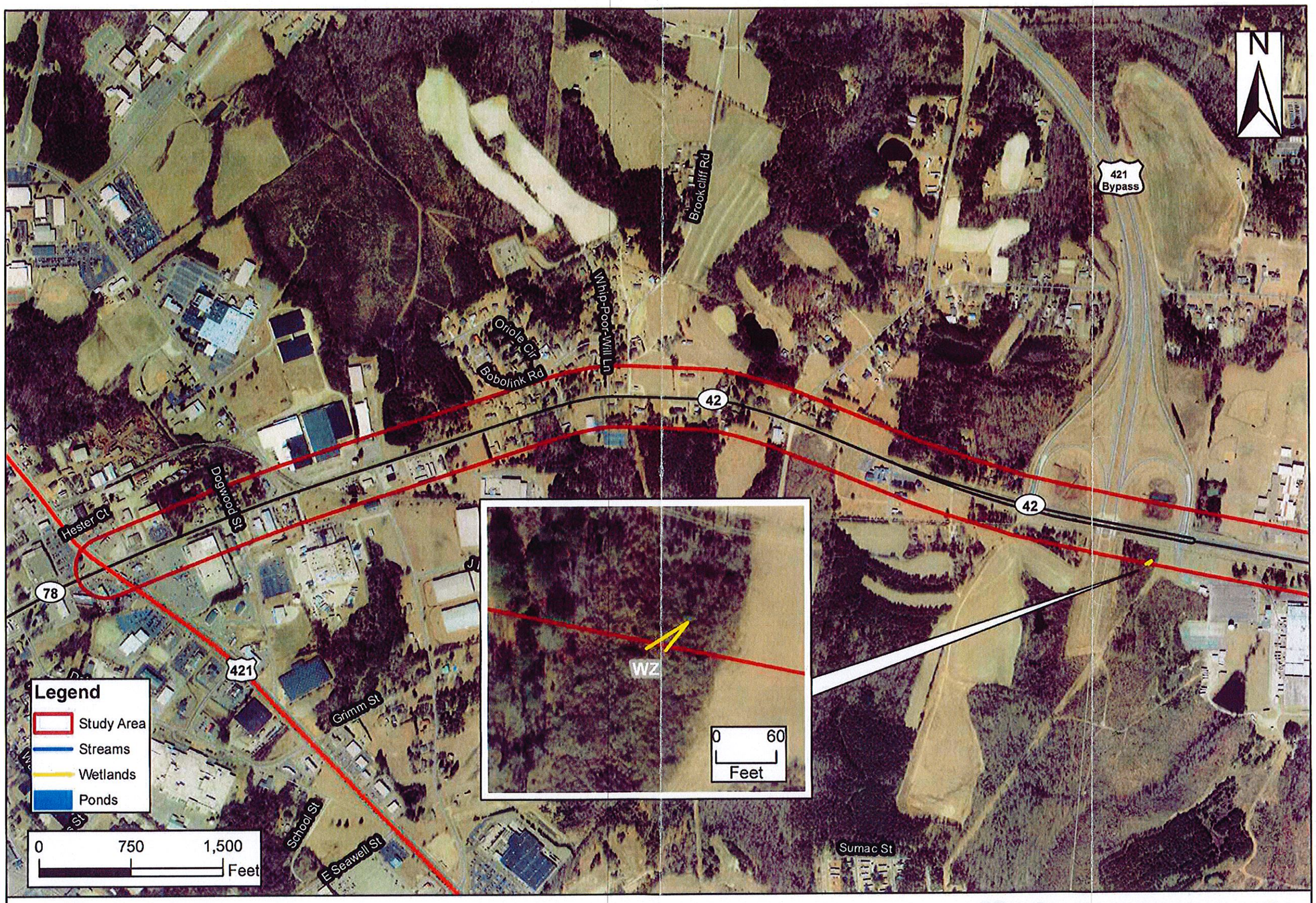


North Carolina Department of Transportation

Project Study Area Map

TIP Project # R-3830
Widening of NC 42/SR 1579 (Broadway Road)
Lee County, North Carolina

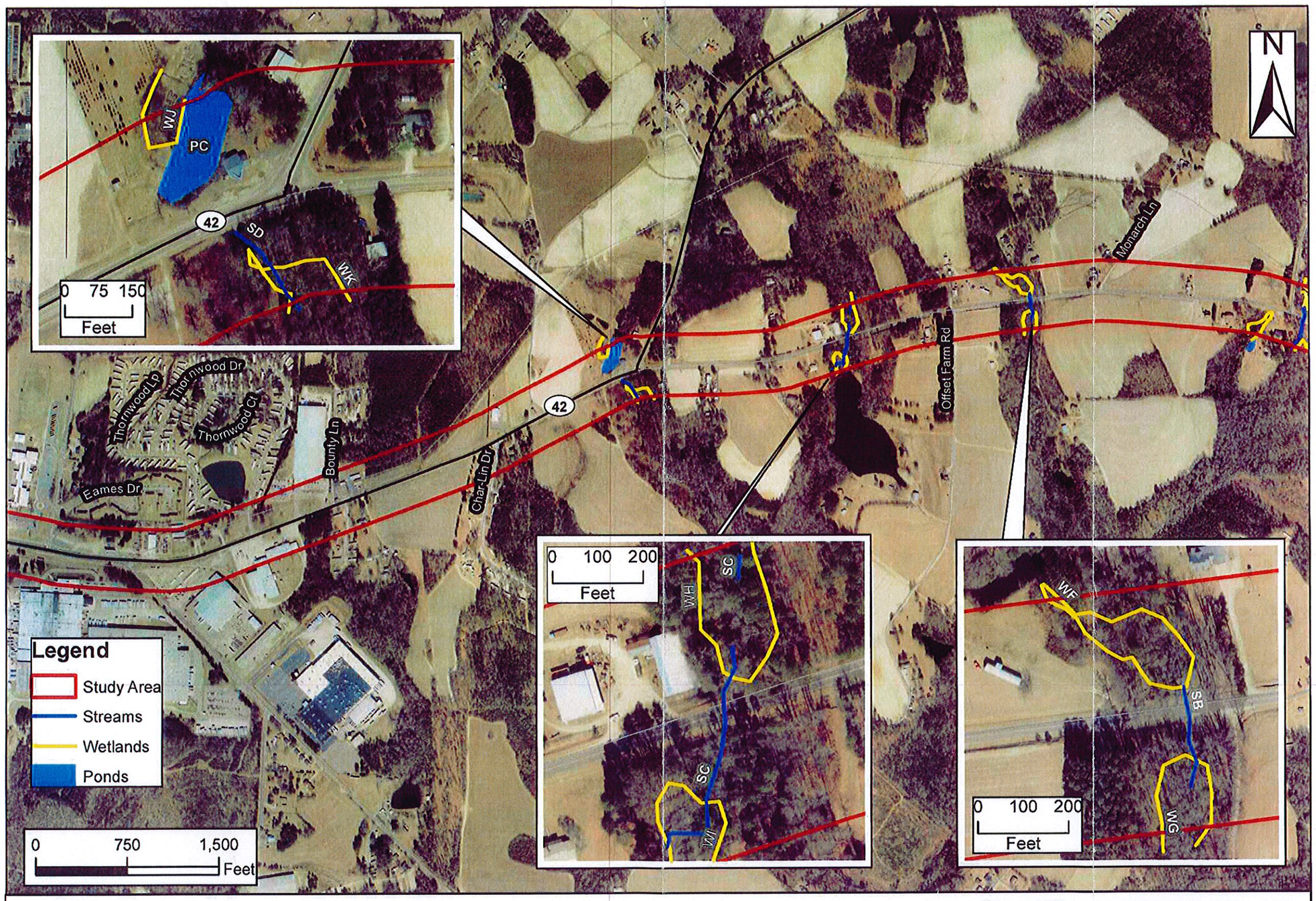
Figure 7



North Carolina Department of Transportation

Jurisdictional Features Map
TIP Project # R-3830
Widening of NC 42/SR 1579 (Broadway Road)
Lee County, North Carolina

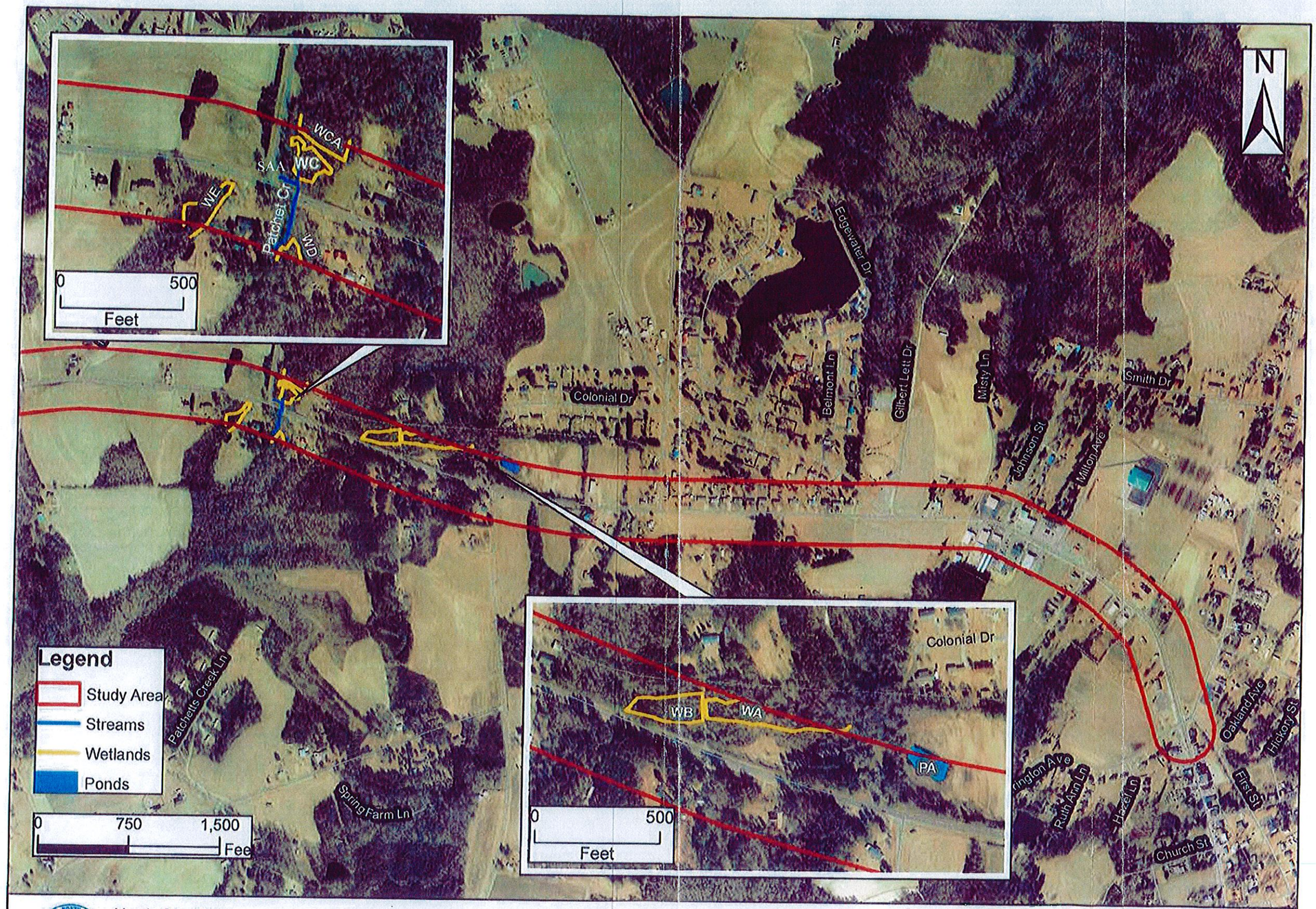
Figure 8A



North Carolina Department of Transportation

Jurisdictional Features Map
TIP Project # R-3830
Widening of NC 42/SR 1579 (Broadway Road)
Lee County, North Carolina

Figure 8B



North Carolina Department of Transportation

Jurisdictional Features Map
TIP Project # R-3830
Widening of NC 42/SR 1579 (Broadway Road)
Lee County, North Carolina

Figure 8C

NOTICE OF A CITIZENS INFORMATIONAL WORKSHOP FOR IMPROVING SAFETY AND REDUCING TRAFFIC CONGESTION ALONG MAIN STREET AND BROADWAY ROAD, FROM HORNER BOULEVARD IN SANFORD TO EAST HARRINGTON AVENUE IN BROADWAY

TIP Project No. R-3830 WBS No. 38887.1.1 Lee County

The North Carolina Department of Transportation (NCDOT) will hold the above Citizens Informational Workshop on October 11, 2011, between the hours of 4:00 p.m. and 7:00 p.m. at East Lee Middle School, 1337 Broadway Road, Sanford, 27330.

The purpose of this meeting is for NCDOT representatives to provide information and answer questions regarding this proposed project. The opportunity to submit written comments will also be provided. Interested citizens may attend this meeting at any time during the above mentioned hours. Please note: there will be no formal presentation during this workshop.

This project will widen Broadway Road to multi-lanes, from Sanford to Broadway. These roadway improvements will begin at the intersection of Horner Boulevard in Sanford and will end at the intersection of East Harrington Avenue in Broadway. NCDOT proposes to add turn-lanes at the intersections of Broadway Road with Rice Road, Cox Mill Road and North Main Street.

Anyone desiring additional information or auxiliary aids and services under the Americans with Disabilities Act for disabled persons to participate in this meeting may contact Karen Reynolds, Project Planning Engineer, at 1548 Mail Service Center, Raleigh, 27699-1548, by telephone at (919) 707-6038 or by email at kreynolds@ncdot.gov.

AVISO DE REUNIÓN INFORMATIVA PARA LA COMUNIDAD PARA MEJORAR LA SEGURIDAD Y REDUCIR LA CONGESTIÓN DEL TRÁFICO A LO LARGO DE MAIN STREET Y BROADWAY ROAD, DESDE HORNER BOULEVARD EN SANFORD HASTA EAST HARRINGTON AVENUE EN BROADWAY

TIP Proyecto No. R-3830 WBS No. 38887.1.1 Condado de Lee

El Departamento de Transporte de Carolina del Norte (NCDOT) llevará a cabo la reunión informativa para la comunidad el 11 de octubre de 2011, entre las 4:00 p.m. y las 7:00 p.m. en East Lee Middle School, 1337 Broadway Road, Sanford, 27330.

El propósito de esta reunión es que los representantes de NCDOT brinden información y respondan preguntas relacionadas con el proyecto propuesto. Usted tendrá oportunidad para entregar sus comentarios por escrito. Las personas interesadas pueden asistir en cualquier momento entre las horas designadas. Tenga en cuenta que no habrá una presentación formal durante la reunión.

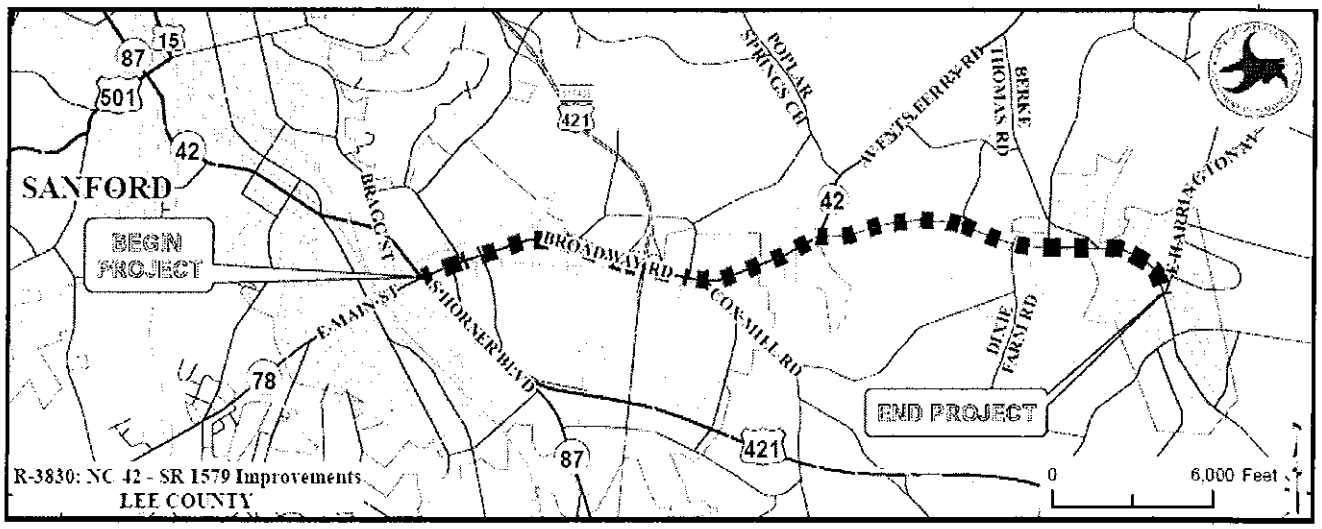
Este proyecto ampliará a múltiples carriles la Main Street y la Broadway Road, desde Sanford hasta Broadway. Se construirá un carril central para girar a lo largo de Main Street y Broadway Road, desde Horner Boulevard en Sanford hasta East Harrington Avenue en Broadway. NCDOT también propone agregar carriles para girar en las intersecciones de Broadway Road con Rice Road, Cox Mill Road y North Main Street.

Cualquier persona que desee información adicional puede contactar a Karen Reynolds, Directora General del Proyecto, escribiendo al1548 Mail Service Center, Raleigh, 27699-1548 o por correo electrónico a kreynolds@ncdot.gov. También puede llamar al 855-823-8431 para recibir ayuda en español.

NCDOT facilitará ayuda y servicios bajo la Ley sobre Estadounidenses con Discapacidades a aquellos que quieran participar en estas juntas. Cualquiera que requiera de estos servicios especiales deberá contactar por escrito inmediatamente a la Sra. Reynolds o llamar al 855-823-8431 para hacer los arreglos pertinentes.

Figure 9A

NC DEPARTMENT OF TRANSPORTATION
HUMAN ENVIRONMENT UNIT
1598 MAIL SERVICE CENTER
RALEIGH, NC 27699-1598



NOTICE OF A CITIZENS INFORMATIONAL WORKSHOP FOR IMPROVING SAFETY AND REDUCING TRAFFIC CONGESTION ALONG MAIN STREET AND BROADWAY ROAD, FROM HORNER BOULEVARD IN SANFORD TO EAST HARRINGTON AVENUE IN BROADWAY

AVISO DE REUNIÓN INFORMATIVA PARA LA COMUNIDAD PARA MEJORAR LA SEGURIDAD Y REDUCIR LA CONGESTIÓN DEL TRÁFICO A LO LARGO DE MAIN STREET Y BROADWAY ROAD, DESDE HORNER BOULEVARD EN SANFORD HASTA EAST HARRINGTON AVENUE EN BROADWAY

North Carolina Department of Transportation

Project Development and Environmental Analysis Branch

NC 42 – SR 1579 (BROADWAY ROAD)
FROM US 421 (HORNER BOULEVARD) IN SANFORD TO
SR 1538 (EAST HARRINGTON AVENUE) IN BROADWAY

LEE COUNTY
TIP PROJECT NO.: R-3830

CITIZENS INFORMATIONAL WORKSHOP

OCTOBER 11, 2011

Figure 9B

CITIZENS INFORMATIONAL WORKSHOP

NC 42 – SR 1579 (BROADWAY ROAD) PROPOSED IMPROVEMENTS
FROM US 421 (HORNER BOULEVARD) IN SANFORD TO
SR 1538 (EAST HARRINGTON AVENUE) IN BROADWAY, LEE COUNTY
MULTI-LANE WIDENING PROJECT
TIP PROJECT R-3830 / WBS: 38887

PURPOSE OF THE CITIZENS INFORMATIONAL WORKSHOP

The purpose of this workshop is to involve the public in the project development process for the NC 42 / SR 1579 (Broadway Road) widening project. If you have comments or suggestions about the proposed transportation improvements described in this handout, please inform a representative of the North Carolina Department of Transportation (NCDOT). Also, please use the enclosed comment sheet to express your concerns or suggestions about this proposed roadway improvement project.

NCDOT realizes that individuals living along a proposed project want to be informed of the possible effects of the project on their homes and businesses. However, exact information is not available at this stage of the project development process. For example, design work is necessary before the actual right of way limits can be established. This type of detailed information will be available at a later date. **The purpose of this workshop is to receive your comments and suggestions *before* final design decisions are made.**

Written comments on this project may be left with NCDOT representatives at the workshop or mailed to NCDOT. If additional information is needed or you would like to submit comments after the workshop, please address requests and comments to:

Write: Mr. Eric Midkiff, P.E., Project Development Unit Head
ATTN: Karen Reynolds, Project Development Engineer
Project Development & Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Call: Karen Reynolds, Project Development Engineer
(919) 707-6038

E-Mail: kreynolds@ncdot.gov

PROJECT DESCRIPTION

The North Carolina Department of Transportation (NCDOT) is proposing to improve NC 42 - SR 1579 (Broadway Road) from US 421 (Horner Boulevard) in Sanford to SR 1538 (East Harrington Avenue) in Broadway, in Lee County. This project is 5.4 miles in length. Project R-3830 is included in NCDOT 2011-2020 Transportation Improvement Program (TIP).

The attached Project Location Map shows the general location of the proposed widening project improvements. TIP Project R-3830 proposes to widen NC 42 – SR 1579 (Broadway Road) to multi-lanes and to construct turn-lanes at the Rice Road, Cox Mill Road and Avents Ferry Road intersections.

During construction, traffic along Broadway Road will be maintained by temporary lane closures and flaggers. NCDOT recognizes that there may be travel inconveniences due to the installation of this project and will work to minimize the construction duration of TIP Project R-3830.

PROJECT SCHEDULE

DRAFT NCDOT 2011-2020 TRANSPORTATION IMPROVEMENT PROGRAM

PROJECT STAGE	TIP SCHEDULE
ENVIRONMENTAL ASSESSMENT	September 2013*
RIGHT-OF-WAY ACQUISITION	May 2016*
CONSTRUCTION	May 2018*
TOTAL ESTIMATED PROJECT COST $ 14,700,000	

* Project schedules are tentative and subject to change.

PURPOSE OF THE PROJECT

The proposed NC 42 – SR 1579 (Broadway Road) widening improvements are needed to:

- Improve safety and operations along Broadway Road within the project limits, by widening the existing roadway and constructing turn-lanes at the Rice Road, Cox Mill Road and Avents Ferry Road intersections.
- Reduce the current accident potential along this section of Broadway Road in Lee County.

OTHER RELATED PROJECTS

- R-2417BB: The Sanford Bypass from SR 1002 to NC 42, including the NC 42 interchange. The project is complete.
- R-2417C: The Sanford Bypass from NC 42 to NC 87. The project is currently under construction.

R-3830 PROJECT STATUS

Project development and environmental studies for the proposed project are in progress. NCDOT is asking for your cooperation by allowing personnel entry into your property to compile their environmental surveys. **An Environmental Assessment (EA) is scheduled for completion in September 2013.** The EA will address impacts that the proposed roadway may have on the human and natural environments.

THE PROJECT DEVELOPMENT PROCESS

Project development and environmental studies are conducted in order to comply with the National Environmental Policy Act (NEPA). NCDOT is preparing an Environmental Assessment (EA) for the NC 42 – SR 1579 (Broadway Road) Widening Project.

The Environmental Assessment will discuss the purpose and need for the proposed improvements, evaluate alternatives and analyze the project impacts on both the human and natural environments. The document will address the following areas of concern:

Efficiency and safety of travel
Neighborhoods and communities
Relocation of homes and/or businesses
Economy of project area
Historic properties and sites
Wetlands
Endangered species
Wildlife and plant communities
Water quality
Floodplains
Farmland and land use plans of project area
Hazardous materials (underground tanks, etc.)
Traffic noise
Air quality

OPPORTUNITIES FOR PUBLIC INVOLVEMENT

NCDOT provides a number of opportunities for citizen and interest group participation during project development. Some of these opportunities are listed below:

SCOPING LETTER

This letter, published in the N.C. Environmental Bulletin, notifies agencies and groups on the State Clearinghouse mailing list that a project study has been initiated and solicits comments from them.

CITIZENS INFORMATIONAL WORKSHOP

This is an informal workshop with the public. NCDOT representatives are available to discuss the project one-on-one with citizens. Workshop handouts provide citizens with project information. Comment sheets are also available to convey questions, comments, and concerns. The number of workshops scheduled for a project depends on the scope and anticipated impact of the project.

DOCUMENT DISTRIBUTION

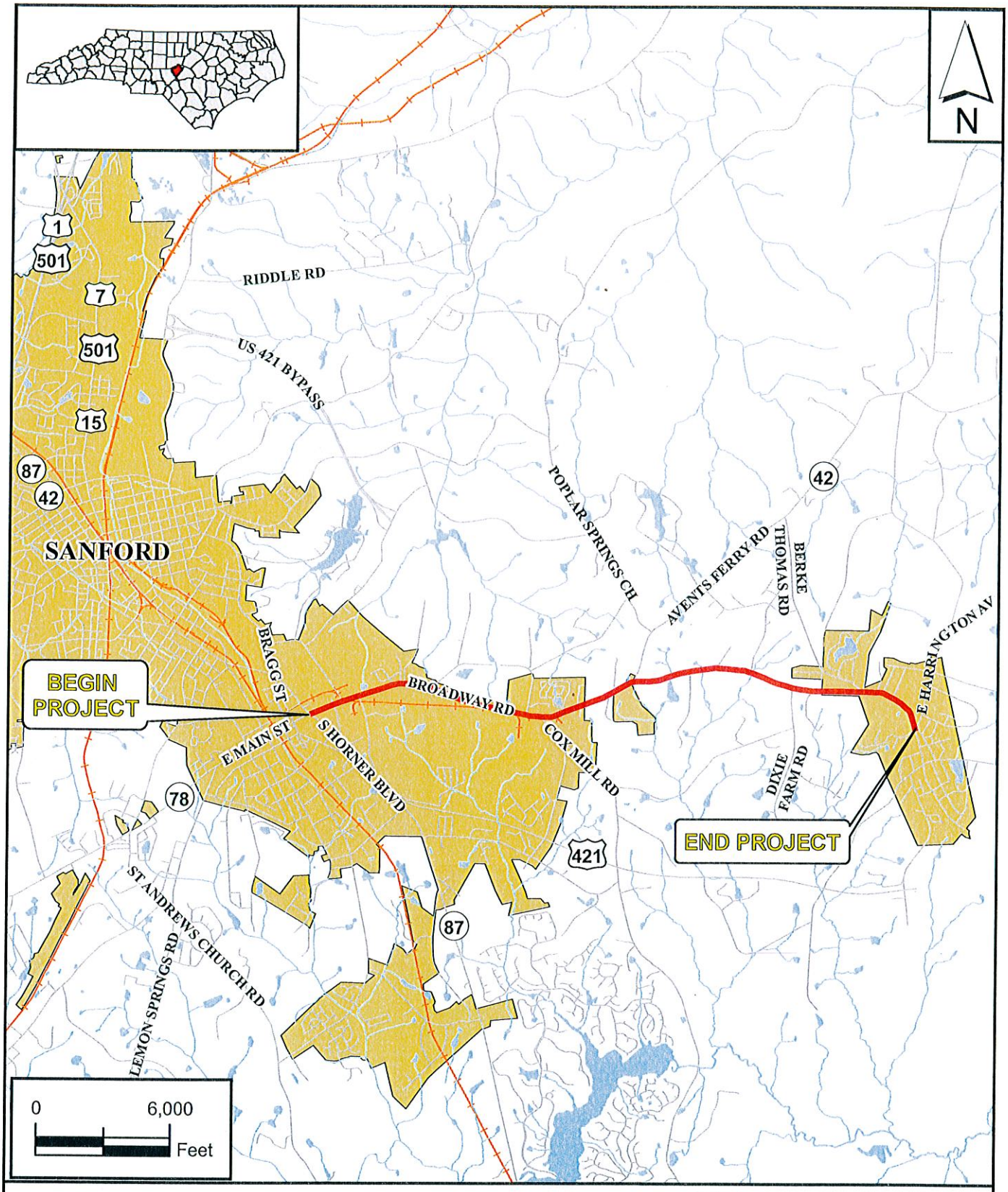
Copies of the environmental document are submitted to the State Clearinghouse for distribution and a notice is published in the N.C. Environmental Bulletin. Upon request, NCDOT will provide copies of the document to the public. Copies are available for public viewing at NCDOT Raleigh and Division offices; the State Clearinghouse office; local government offices, including the local council of government office; and local public libraries.

PUBLIC HEARING

One or possibly more formal public hearings for the public record are held. The hearing format typically involves a short presentation, followed by an opportunity for citizens to comment.

CITIZEN LETTERS

Citizens are encouraged to write NCDOT, provide information, and express concerns regarding the proposed improvements. Correspondence from citizens and interest groups is considered during the course of the project study.



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

VINICITY MAP
R-3830:
NC 42 - SR 1579 Improvements

LEE COUNTY
TIP PROJECT R-3830

County:	LEE
Div:	8
WBS:	38887.1.1
Date:	JULY 2011

Figure 1

By: J.TORTORELLA

COMMENT SHEET

NC 42 - BROADWAY ROAD WIDENING PROJECT
SANFORD TO BROADWAY, LEE COUNTY
NCDOT TIP PROJECT NO.: R-3830

October 11, 2011

NAME_____
(Please Print)

ADDRESS_____
(Please Print)

COMMENTS_____

Please send comments to:
Mr. Eric Midkiff, P.E., Project Development Unit Head
ATTN: Karen Reynolds, Project Development Engineer
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina, 27699-1548

DEPARTAMENTO DE TRANSPORTE DE CAROLINA DEL NORTE

SECCIÓN DE DESARROLLO DE PROYECTOS Y ANÁLISIS DEL IMPACTO AMBIENTAL

NC 42 – SR 1579 (BROADWAY ROAD)
DESDE US 421(HORNER BOULEVARD) EN SANFORD HASTA
SR 1538 (EAST HARRINGTON AVE) EN BROADWAY

CONDADO DE LEE
PROYECTO TIP No. R- 3830

REUNIÓN INFORMATIVA PARA LA COMMUNIDAD
11 DE OCTUBRE, 2011

Figure 9C

REUNIÓN INFORMATIVA PARA LA COMMUNIDAD

NC 42 – SR 1579 (BROADWAY ROAD) MEJORAS PROPUESTAS DESDE US 421(HORNER BOULEVARD) EN SANFORD HASTA SR 1538 (EAST HARRINGTON AVE) EN BROADWAY, CONDADO DE LEE PROYECTO DE AMPLIACIÓN A MULTIPLES CARRILES PROYECTO TIP No. R- 3830 / WBS: 38887

OBJETIVO DE LA REUNIÓN INFORMATIVA PARA LA COMMUNIDAD

El objetivo de esta reunión es involucrar al público en el proceso del desarrollo del proyecto de ampliación de las carreteras NC 42 – SR 1579 (Broadway Road). Si usted tiene comentarios o sugerencias acerca de las mejoras propuestas al sistema de transporte que se describen a continuación, por favor hágaselo saber a un representante de NCDOT. Use la hoja de comentarios adjunta para expresar sus dudas o sugerencias acerca de este proyecto.

NCDOT tiene presente que los habitantes de la zona afectada por la propuesta quiere estar informada acerca de los potenciales efectos de este proyecto sobre sus hogares o negocios. Sin embargo, en la etapa inicial actual del proyecto aún no se puede proveer información exacta. Por ejemplo, se necesita preparar un diseño antes de que se pueda determinar el derecho de vía. Este tipo de información específica estará a su disposición más adelante. **El objetivo de esta reunión es recolectar sus sugerencias y comentarios *antes* de hacer decisiones finales sobre el diseño.**

Sus comentarios escritos los puede dejar con un representante de NCDOT en la reunión o los puede enviar después por correo regular al NCDOT. Si necesita información adicional o si desea comentar después de la reunión, por favor diríjase a:

Escriba a: Señor Eric Midkiff, Director del Grupo de Ingenieros Encargado de Desarrollo del Proyecto
Atención: Karen Reynolds, Ingeniera de Desarrollo del Proyecto,
Sección de Desarrollo de Proyectos y Análisis del Impacto Ambiental
Departamento de Transporte de Carolina del Norte
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Llame a: Karen Reynolds, Ingeniera de Desarrollo del Proyecto
(919) 707-6038

Correo Electrónico: kreynolds@ncdot.gov

DESCRIPCIÓN DEL PROYECTO

El Departamento de Transporte de Carolina del Norte (NCDOT por sus siglas in inglés) está proponiendo mejorar NC 42 – SR 1579 (Broadway Road) desde US 421 (Horner Boulevard) en Sanford hasta SR 1538 (East Harrington Avenue) en Broadway en el Condado de Lee. Este trayecto abarca una longitud de 5.4 millas. El proyecto R-3830 está incluido en el Programa de Mejoras en el Transporte de NCDOT 2011-2020 (TIP por sus siglas en inglés).

El mapa de ubicación del proyecto adjunto muestra la localización general del proyecto de ampliación propuesto. El proyecto TIP R-3830 pretende ampliar NC 42 – SR 1579 (Broadway Road) a múltiples vías y carriles exclusivos para girar en las intersecciones con Rice Road, Cox Mill Road y Avents Ferry Road.

Durante la construcción, el tráfico en Broadway Road se conservará con la clausura temporal de algunos carriles y señalización con banderas. NCDOT reconoce que se producirán algunos inconvenientes por este proyecto TIP R-3830 y hará todo lo posible por reducir el tiempo de construcción de este proceso .

CALENDARIO DEL PROYECTO

BORRADOR DEL PROGRAMA DE MEJORAS EN EL TRANSPORTE DE NCDOT 2011-2020

ESTADO DEL PROYECTO	FECHA DE TERMINACIÓN
EVALUACIÓN AMBIENTAL	Septiembre 2013*
ADQUISICIÓN DEL DERECHO DE VÍA	Mayo 2016*
CONSTRUCCIÓN	Mayo 2018*
COSTO TOTAL ESTIMADO DEL PROYECTO $ 14,700,000	

* El calendario del proyecto es tentativo y está sujeto a cambios.

PROPÓSITO DEL PROYECTO

La propuesta de mejoras por ampliación NC 42 – SR 1579 (Broadway Road) es necesaria para poder:

- Mejorar la seguridad y las operaciones a lo largo de Broadway Road, dentro de los límites del proyecto, ampliando la avenida existente y construyendo carriles para girar en las intersecciones con Rice Road, Cox Mill Road y Avents Ferry Road.

- Reducir el potencial de accidentes actual, existente a lo largo de esta sección de Broadway Avenue en el condado de Lee.

OTROS PROYECTOS RELACIONADOS

- R- 2417BB: El Bypass de Sanford desde SR 1002 hasta NC 42, incluyendo el intercambio vial. NC 42. El proyecto está terminado.

- R-2417C: El Bypass de Sanford desde NC 42 hasta NC 87. El proyecto está actualmente en construcción.

ESTADO DEL PROYECTO R-3830

Actualmente se están llevando a cabo, el desarrollo del proyecto y los estudios ambientales. NCDOT está pidiendo su colaboración para permitir el acceso a su propiedad al personal del Departamento con el fin de que se pueda cumplir con los estudios del impacto ambiental. **La fecha de término de la Evaluación Ambiental (EA) es Septiembre 2013.** La EA dará a conocer el impacto que la propuesta pueda tener en el ambiente humano y natural.

EL PROCESO DE DESARROLLO DEL PROYECTO

El desarrollo del proyecto y los estudios ambientales se realizan en cumplimiento con la Ley Nacional Ambiental (NEPA por sus siglas en ingles). NCDOT está preparando una Evaluación Ambiental (EA) para el proyecto de ampliación NC 42 – SR 1579 (Broadway Road).

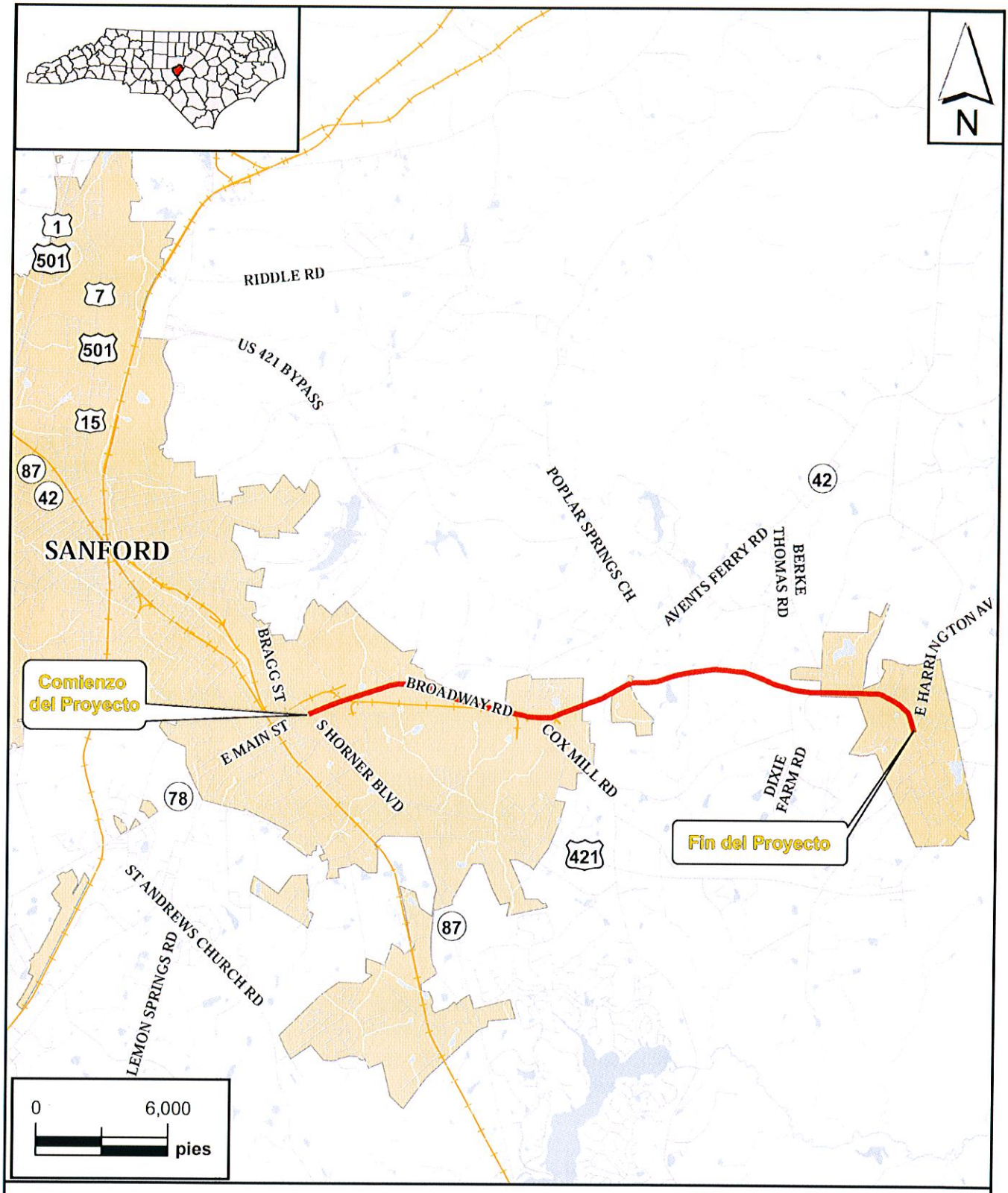
La Evaluación Ambiental estudiará el propósito y la necesidad de las mejoras propuestas, evaluará alternativas y analizará los impactos en los ambientes humanos y naturales. El documento comprenderá las siguientes áreas de interés:

Eficiencia y seguridad de los viajes
Vecindarios y comunidades
Reubicación de domicilios y/o negocios
Economía en el área del proyecto
Sitios y propiedades históricas
Humedales
Especies en peligro de extinción
Comunidades de flora y fauna
Calidad del agua
Llanuras de inundación
Tierras de cultivo y planes de uso de la tierra en el área del proyecto
Materiales peligrosos (tanques subterráneos, etc.)
Calidad del aire
Ruido del tráfico

OPORTUNIDADES DE PARTICIPACIÓN PARA EL PÚBLICO

NCDOT ofrece numerosas oportunidades de participación para el público y grupos interesados durante el desarrollo del proyecto. Algunas de estas formas de participación son:

CARTA DE ALCANCE	Esta carta, publicada en el boletín NC Environmental, notifica a las agencias y grupos que se encuentren en la lista de contactos de la Central Estatal de Recopilación y Distribución de Información del Medio Ambiente (State Enviromental Review Clearinghouse) acerca del inicio del estudio de un proyecto y solicita comentarios.
REUNIÓN INFORMATIVA PARA LA COMMUNIDAD	Es una reunión informal con el público. Representantes del NCDOT están disponibles para responder a los comentarios del público de manera individual. Las hojas informativas proveen al público información detallada sobre el proyetco. Las hojas de comentarios están también disponibles para escribir comentarios, dudas y preguntas. El número de reuniones que se programan por proyecto depende del alcance e impacto anticipado del proyecto.
DISTRIBUCIÓN DE DOCUMENTOS	Copias del documento sobre el impacto ambiental se entregan a la Central Estatal de Recopilación y Distribución de Información del Medio Ambiente para su distribución y una notificación se publica en el boletín de NC Environmental. NCDOT puede entregar copias de este documento al público que lo solicite. También hay copias a disposición del público en general para su revisión en las oficinas del NCDOT en Raleigh, las oficinas del Estado de Intercambio de Información, oficinas locales gubernamentales incluyendo las oficinas de los consejos locales y bibliotecas públicas.
AUDIENCIAS PÚBLICAS	Se realizan una o más audiencias formales para los archivos públicos. El esquema de la audiencia normalmente incluye una presentación breve seguida de la intervención del público con sus comentarios.
CARTAS DEL PÚBLICO	Se anima al público a que escriban a NCDOT, provean información y expresen sus preocupaciones acerca de las mejoras propuestas. Las cartas que se reciben del público y grupos interesados hacen parte de la consideración a lo largo del estudio del proyecto.



DEPARTAMENTO DE TRANSPORTE
DE CAROLINA DEL NORTE
DIVISIÓN DE CARRETERAS
SECCIÓN DE DESARROLLO DE PROYECTOS
Y ANÁLISIS DEL IMPACTO AMBIENTAL

MAPA DEL AREA
R-3830:
NC 42 - SR 1579 Improvements
CONDADO DE LEE
PROYECTO TIP No. R- 3830

Condado:	LEE
División:	8
WBS:	38887.1.1
Fecha:	JULY 2011

Figura 1

Por: J.TORTORELLA

HOJA DE COMENTARIOS

PROYECTO DE AMPLIACIÓN NC 42 – BROADWAY ROAD
DE SANFORD A BROADWAY – CONDADO DE LEE
NCDOT PROYECTO TIP NO.: R-3830

11 DE OCTUBRE, 2011

NOMBRE_____
(POR FAVOR USE LETRA IMPRENTA)

DIRECCIÓN_____
(POR FAVOR USE LETRA IMPRENTA)

COMENTARIOS_____

Por favor envíe sus comentarios a:
Señor Eric Midkiff, Director del Grupo de Ingenieros Encargado de Desarrollo del Proyecto
Atención: Karen Reynolds, Ingeniera de Desarrollo del Proyecto
Sección de Desarrollo de Proyectos y Análisis del Impacto Ambiental
Departamento de Transporte de Carolina del Norte
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

APPENDIX 1

Agency Comments

KSR- 2/23/11

Sanford/Lee County

Planning and Development
P.O. Box 3729, Sanford, N.C. 27331-3729

Robert L. Bridwell, *AICP*
Director

16 February 2011

Ms. Karen Reynolds
Project Planning Engineer/TDEA
NC Department of Transportation
1548 MSC
Raleigh, NC 27699-1548

TIP No: R3830

Dear Ms. Reynolds:

Please be advised that this letter is in response to the scoping inquiry letter (per R-3830) received by the several representatives of the City of Sanford, Lee County and the Town of Broadway. As the Planning Director for these jurisdictions I am responding on the behalf of all 3 entities. However, this does not preclude or replace others who may wish to respond as well.

This project is also referred to as the Main St. /Broadway Rd. connector (NC Hwy 42 from Horner Blvd. in Sanford to N. Main St. in Broadway.) This corridor connects an urbanized area of Sanford providing access to major industrial employers, significant retail activity, Lee County High School, the Civic Center and Central Carolina Community College. It moves traffic to 421 Business (Horner Blvd.) and will access the new 421 Bypass, including the southern portion currently under construction. Further, this corridor links the Town of Broadway to the new 421 Bypass and to the general Sanford urban area.

Improvements to this corridor were originally proposed as part of the Lee County Transportation Plan (CTP) completed in 2007 and recently accepted by NCDOT. It was later included as a priority project (by resolution) from all the three jurisdictions, and endorsed by TARPO in the most recent submittals for STIP.

The Lee County CTP designated this corridor as a "complete street" project providing for profiles that include curb & gutter, sidewalks, and planted medians. I also anticipate about that the City will soon adopt the Sanford Pedestrian Plan which will address pedestrian needs for this corridor within the urban area. A bicycle plan will likely be

Administration: 225 E. Weatherspoon Street
Current Planning; Inspections: 900 Woodland Avenue
Strategic Information Service; Code Enhancement: 226 Carthage Street

Phone: (919) 718-4656 • Fax: (919) 775-8205
E-mail: bob.bridwell@sanfordnc.net

forthcoming and we anticipate designation of a bike lane for this entire route. I will be happy to further elaborate on these issues during the scoping meeting.

I would be remiss if I did not mention a concern that has been relayed about the impact of widening on Shallow Well Church. This church includes its principle building, additional structures and a cemetery on both sides of Broadway Road. I believe it is incumbent on all parties to be sensitive to the how the project affects this church.

Please note that we believe **R3830** to be an important project providing major contributions to traffic safety, efficient traffic movement, economic development and quality of life. We appreciate the attention given to this project and hope that it can be successfully completed. I am looking forward to the scoping meeting in August.

Sincerely,

Robert L. Bridwell

Robert L. Bridwell, AICP
Director of Planning and Community Development

C: John Crumpton, Lee County Manager
Hal Hegwer, Sanford City Manager
Bob Stevens, Broadway Town Manager

(KSR: 3/3/2011)

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

REPLY TO
ATTENTION OF:

February 16, 2011

Regulatory Division

Action ID. No. SAW-2011-00310; R-3830, Sanford County

Dr. Gregory J. Thorpe, Ph.D.
Environmental Management Director
North Carolina Department of Transportation
Project Development & Environmental Analysis
1598 Mail Service Center
Raleigh, N.C. 27699-1598

Dear Dr. Thorpe:

Reference is made to your letter of February 4, 2011, regarding the proposed widening of NC 42 from US 421 (Horner Boulevard) in Sanford to SR 1579 (North Main Street) in Broadway, and along SR 1579 (Broadway Road), NC 42 (Avents Ferry Road) to SR 1538 (Buckhorn Avenue) in Broadway, Sanford County, North Carolina. The proposed project also includes the construction of turn lanes at the intersections of SR 1523 (Rice Road), SR 1529 (Cox Mill Road) and SR 1579 (Broadway Road). The letter requested information and comments to assist in evaluating potential environmental impacts of the project.

We have reviewed the subject documents and determined that, based upon a review of the information provided and available maps, the construction of this project may impact streams and/or wetlands within the work corridor. Please be aware that impacts associated with the discharge of fill into jurisdictional waters of the United States are subject to our regulatory authority pursuant to Section 404 of the Clean Water Act. Any discharge of excavated or fill material into waters of the United States and/or any adjacent wetlands would require Department of the Army (DA) permit authorization. The type of DA authorization required (i.e., general or individual permit) will be determined by the location, type, and extent of jurisdictional area impacted by the project, and by the project design and construction limits.

Until additional data is furnished which details the extent of the construction limits of the proposed project, and an onsite inspection is completed with regard to determinations of the presence of jurisdictional waters in the project area, we are unable to verify that the project will not have jurisdictional impacts, or to provide specific comments concerning DA permit requirements or a recommendation of alternatives. To assist you with determining permitting requirements, we recommend that you perform a detailed delineation of the streams and/or wetlands present on the project site.

When this information becomes available, it should be forwarded to our office for review and comment, as well as a determination of DA permit eligibility.

Should you have any further questions related to DA permits for this project, please contact me at (910) 251-4829.

Sincerely,

Ronnie Smith
NCDOT, Project Manager
Wilmington Regulatory Field Office

Copies Furnished:

Ms. Karen Reynolds
North Carolina Department of Transportation
Project Development & Environmental Analysis
1598 Mail Service Center
Raleigh, N.C. 27699-1598

Mr. Mason Herndon
NCDENR-DWQ
225 Green Street, Suite 214
Fayetteville, North Carolina 28301-5094

Mr. Tim Johnson, P.E.
Division Engineer, Division 8
North Carolina Department of Transportation
Post Office Box 1057
Aberdeen, North Carolina 28315

Mr. Art King
Division Environmental Officer, Division 8
North Carolina Department of Transportation
Post Office Box 1057
Aberdeen, North Carolina 28315

KSR: 3/15/2011

North Carolina Department of Environment and Natural Resources
Division of Water Quality
Coleen H. Sullins
Director

Beverly Eaves Perdue
Governor

Dee Freeman
Secretary

March 7, 2011

MEMORANDUM

To: Dr. Gregory Thorpe, PhD, NCDOT

From: Belinda Henson, NC Division of Water Quality, Fayetteville Regional Office Belinda L. Henson

Subject: Scoping comments on proposed improvements to NC 42, from US 421 Horner Blvd in Sanford to SR 1579 (North Main Street) in Broadway, and along SR 1579, NC 42 (Avents Ferry Road) to SR 1538 (Buckhorn Avenue) in Broadway, Widen to three lanes with turn lanes at SR 1523 (Rice Road)), SR 1529 (Cox Mill Road) and SR 1579 (Broadway Road), in Lee County, Federal Aid Project No. STP-0042(49), WBS 38887, TIP R-3830.

Reference your correspondence dated February 4, 2011 in which you requested comments for the referenced project. Preliminary analysis of the project reveals the potential for multiple impacts to streams and jurisdictional wetlands in the project area. More specifically, impacts to:

Stream Name	River Basin	Stream Classification(s)	Stream Index Number	303(d) Listing
Little Buffalo Creek	Cape Fear	C	17-42	Yes
Skunk Creek	Cape Fear	C	03-06-11	N/A
Lick Creek	Cape Fear	B	18-4-(1)	N/A
UT to Sanford water supply	Cape Fear	WS-IV	18-4-3	N/A
Carrs Creek	Cape Fear	C	18-20-7	N/A
Patchet Creek	Cape Fear	C	03-06-11	N/A
Fall Creek	Cape Fear	C	18-8	N/A

Further investigations at a higher resolution should be undertaken to verify the presence of other streams and/or jurisdictional wetlands in the area. In the event that any jurisdictional areas are identified, the Division of Water Quality requests that NCDOT consider the following environmental issues for the proposed project:

Project Specific Comments:

1. Little Buffalo Creek are class C; 303(d) waters of the State. Little Buffalo Creek is on the 303(d) list for impaired use for aquatic life due to biological integrity criteria. NCDWQ is very concerned with sediment and erosion impacts that could result from this project. NCDWQ recommends that the most protective sediment and erosion control BMPs be implemented in accordance with *Design Standards in Sensitive Watersheds* to reduce the risk of nutrient runoff to Little Buffalo Creek. NCDWQ requests that road design plans provide treatment of the storm water runoff through best management practices as detailed in the most recent version of NCDWQ's *Stormwater Best Management Practices*.

225 Green St., Suite 714, Fayetteville, NC 28301-5043
Phone: 910-433-3300 \ FAX: 910-486-0707
Internet: www.ncwaterquality.org

General Project Comments:

2. The environmental document shall provide a detailed and itemized presentation of the proposed impacts to wetlands and streams with corresponding mapping. If mitigation is necessary as required by 15A NCAC 2H.0506(h), it is preferable to present a conceptual (if not finalized) mitigation plan with the environmental documentation. Appropriate mitigation plans will be required prior to issuance of a 401 Water Quality Certification.

3. Environmental assessment alternatives shall consider design criteria that reduce the impacts to streams and wetlands from storm water runoff. These alternatives shall include road designs that allow for treatment of the storm water runoff through best management practices as detailed in the most recent version of NCDWQ *Stormwater Best Management Practices*, such as grassed swales, buffer areas, preformed scour holes, retention basins, etc.

4. After the selection of the preferred alternative and prior to an issuance of the 401 Water Quality Certification, NCDOT is respectfully reminded that they will need to demonstrate the avoidance and minimization of impacts to wetlands (and streams) to the maximum extent practical. In accordance with the Environmental Management Commission's Rules {15A NCAC 2H.0506(h)}, mitigation will be required for impacts of greater than 1 acre to wetlands. In the event that mitigation is required, the mitigation plan shall be designed to replace appropriate lost functions and values. The NC Ecosystem Enhancement Program may be available for use as wetland mitigation.

5. In accordance with the Environmental Management Commission's Rules {15A NCAC 2H.0506(h)}, mitigation will be required for impacts of greater than 150 linear feet to any single stream. In the event that mitigation is required, the mitigation plan shall be designed to replace appropriate lost functions and values. The NC Ecosystem Enhancement Program may be available for use as stream mitigation.

6. NCDWQ is very concerned with sediment and erosion impacts that could result from this project. NCDOT shall address these concerns by describing the potential impacts that may occur to the aquatic environments and any mitigating factors that would reduce the impacts.

7. If a bridge is being replaced with a hydraulic conveyance other than another bridge, NCDWQ believes the use of a Nationwide Permit may be required. Please contact the US Army Corp of Engineers to determine the required permit(s).

8. If the old bridge is removed, no discharge of bridge material into surface waters is allowed unless otherwise authorized by the US ACOE. Strict adherence to the Corps of Engineers guidelines for bridge demolition will be a condition of the 401 Water Quality Certification.

9. Whenever possible, NCDWQ prefers spanning structures. Spanning structures usually do not require work within the stream or grubbing of the streambanks and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges shall allow for human and wildlife passage beneath the structure. Fish passage and navigation by canoeists and boaters shall not be blocked. Bridge supports (bents) shall not be placed in the stream when possible.

10. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. Please refer to the most current version of NCDWQ's *Stormwater Best Management Practices.*

11. If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills.

12. If temporary access roads or detours are constructed, the site shall be graded to its preconstruction contours and elevations. Disturbed areas shall be seeded or mulched to stabilize the soil and appropriate native woody species should be planted. When using temporary structures the area shall be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact allows the area to re-vegetate naturally and minimizes soil disturbance.

13. Placement of culverts and other structures in waters, streams, and wetlands shall be below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and down stream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWQ. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWQ for guidance on how to proceed and to determine whether or not a permit modification will be required.

14. If multiple pipes or barrels are required, they shall be designed to mimic natural stream cross section as closely as possible including pipes or barrels at flood plain elevation, floodplain benches, and/or sills may be required where appropriate. Widening the stream channel shall be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.

15. If foundation test borings are necessary; it should be noted in the document. Geotechnical work is approved under General 401 Certification Number 3624/Nationwide Permit No. 6 for Survey Activities.

16. Sediment and erosion control measures sufficient to protect water resources must be implemented and maintained in accordance with the most recent version of North Carolina Sediment and Erosion Control Planning and Design Manual and the most recent version of NCS000250.

17. All work in or adjacent to stream waters shall be conducted in a dry work area unless otherwise approved by NCDWQ. Approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures should be used to prevent excavation in flowing water.

18. Sediment and erosion control measures shall not be placed in wetlands and streams.

19. Borrow/waste areas shall avoid wetlands to the maximum extent practical. Impacts to wetlands in borrow/waste areas could precipitate compensatory mitigation.

20. While the use of National Wetland Inventory (NWI) maps, NC Coastal Region Evaluation of Wetland Significance (NC-CREWS) maps and soil survey maps are useful tools, their inherent inaccuracies require that qualified personnel perform onsite wetland delineations prior to permit approval.

21. Heavy equipment shall be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams. This equipment shall be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.

22. In most cases, NCDWQ prefers the replacement of the existing structure at the same location with road closure. If road closure is not feasible, a temporary detour should be designed and located to avoid wetland impacts, minimize the need for clearing and to avoid destabilizing stream banks. If the structure will be on a new alignment, the old structure shall be removed and the approach fills removed from the 100-year floodplain. Approach fills should be removed and restored to the natural ground elevation. The area shall be stabilized with grass and planted with native tree species. Tall fescue shall not be used in riparian areas.

23. Riprap shall not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be properly designed, sized and installed.

Thank you for requesting our input at this time. NCDOT is reminded that issuance of a 401 Water Quality Certification requires that appropriate measures be instituted to ensure that water quality standards are met and designated uses are not degraded or lost. If you have any questions or require additional information, please contact Mason Herndon at (910) 308-4021.

cc: Ronnie Smith, US Army Corps of Engineers, Wilmington Field Office
Clarence Coleman, Federal Highway Administration
Tim Johnson, PE, Division 8 Engineer
Art King, Division 8 Environmental Officer
Chris Militscher, Environmental Protection Agency (electronic copy only)
Travis Wilson, NC Wildlife Resources Commission
William D Gilmore, PE, Ecosystem Enhancement Program
Sonia Carrillo, NCDWQ Central Regional Office
File Copy

North Carolina Department of Cultural Resources

State Historic Preservation Office

Peter B. Sandbeck, Administrator

Beverly Eaves Perdue, Governor
Linda A. Carlisle, Secretary
Jeffrey J. Crow, Deputy Secretary

Office of Archives and History
Division of Historical Resources
David Brook, Director

March 8, 2011

MEMORANDUM

To: Karen Reynolds
Project Development & Environmental Branch
NC Department of Transportation

From: Claudia Brown RSE for Claudia Brown

Re: Widening of NC 42 from US 421 in Sanford to SR 1579 in Broadway, R-3830, Lee County, ER 11-0255

Thank you for your e-mail of February 11, 2011, concerning the above project.

There are no known archaeological sites within the proposed project area. Based on our knowledge of the area, it is unlikely that any archaeological resources that may be eligible for inclusion in the National Register of Historic Places will be affected by the project. We, therefore, recommend that no archaeological investigation be conducted in connection with this project.

We have conducted a search of our maps and files and located the following structures of historical or architectural importance within the general area of this project:

Site Number	Site Name	Status
LE 0775	Stevens Milling Company	Study List in 1992
LE 0334	Shallow Well Christian Church and Cemetery	Surveyed in 1991-1992
LE 0752	Thomas House	Surveyed in 1991-1992
LE 0335	House	Surveyed in 1991-1992
LE 0257	Thomas Farm	Surveyed in 1991-1992
LE 0766	House	Surveyed in 1991-1992
LE 0770	House	Surveyed in 1991-1992
LE 0270	Houses	Surveyed in 1991-1992
LE 0267	Bank of Broadway	Surveyed in 1991-1992
LE 0761	Houses	Surveyed in 1991-1992
LE 0269	Houses	Surveyed in 1991-1992
LE 0268	Houses	Surveyed in 1991-1992
LE 0778	Houses	Surveyed in 1991-1992

We recommend that a Department of Transportation architectural historian identify and evaluate any structures over fifty years of age within the project area, and report the findings to us.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919-807-6579. In all future communication concerning this project, please cite the above-referenced tracking number.

cc: Matt Wilkerson, NCDOT
Mary Pope Furr, NCDOT

From: Matthew Day [mailto:mday@tjcog.org]
Sent: Thursday, July 21, 2011 8:53 AM
To: Reynolds, Karen S
Subject: R-3830 Land Use Info

Karen,

Here is some basic land use info on R-3830.

Currently:

- At the US 421 intersection, there are several shopping centers, fast food restaurants, etc.
- Just east of the US 421 intersection, near the intersections with Nash Street and Rosser Road, is an industrial area (and there are additional industrial facilities back along each of these side roads).. Nash Street also serves as the access to the high school and the community college.
- There is a residential neighborhood on the north side of NC 42 between the Nash/Rosser area and the new 421 bypass interchange. The rest of this area between Nash/Rosser and the 421 bypass is a mixture of agricultural and/or open space and scattered development (including a few churches, small industries, etc.). There is a large cemetery on both sides of NC 42 in this area (near the Shallow Well Church).
- Just east of the 421 bypass interchange is a more developed area. Coty and Moen have large industrial facilities along the south side of NC 42 here, and on the north side of the highway are a middle school, an apartment complex, a large mobile home park, a veterinary hospital, and the Arden industrial facility.
- Once east of the Arden facility, there is very little development until you reach Broadway. Most of this area is farmland or forested, with scattered homes and businesses. There is a small residential subdivision and a thrift store located at the Char-Lin Drive intersection.
- In the vicinity of Dalrymple Road, development picks up again as you begin to enter Broadway.. Between Dalrymple and Hunter, there are several residences along the road. Between Hunter and Harrington there is a commercial area with a Piggly Wiggly, Family Dollar, and hardware store. South/east of Harrington is the Broadway Central Business District.

I have also attached a map showing the generalized zoning districts in that area – it's not the precise district information because it lumps a lot of the zones together (i.e. "Commercial" instead of C-1, C-2, etc.), but it should give you the basic info you are looking for. Let me know if you need any further information.

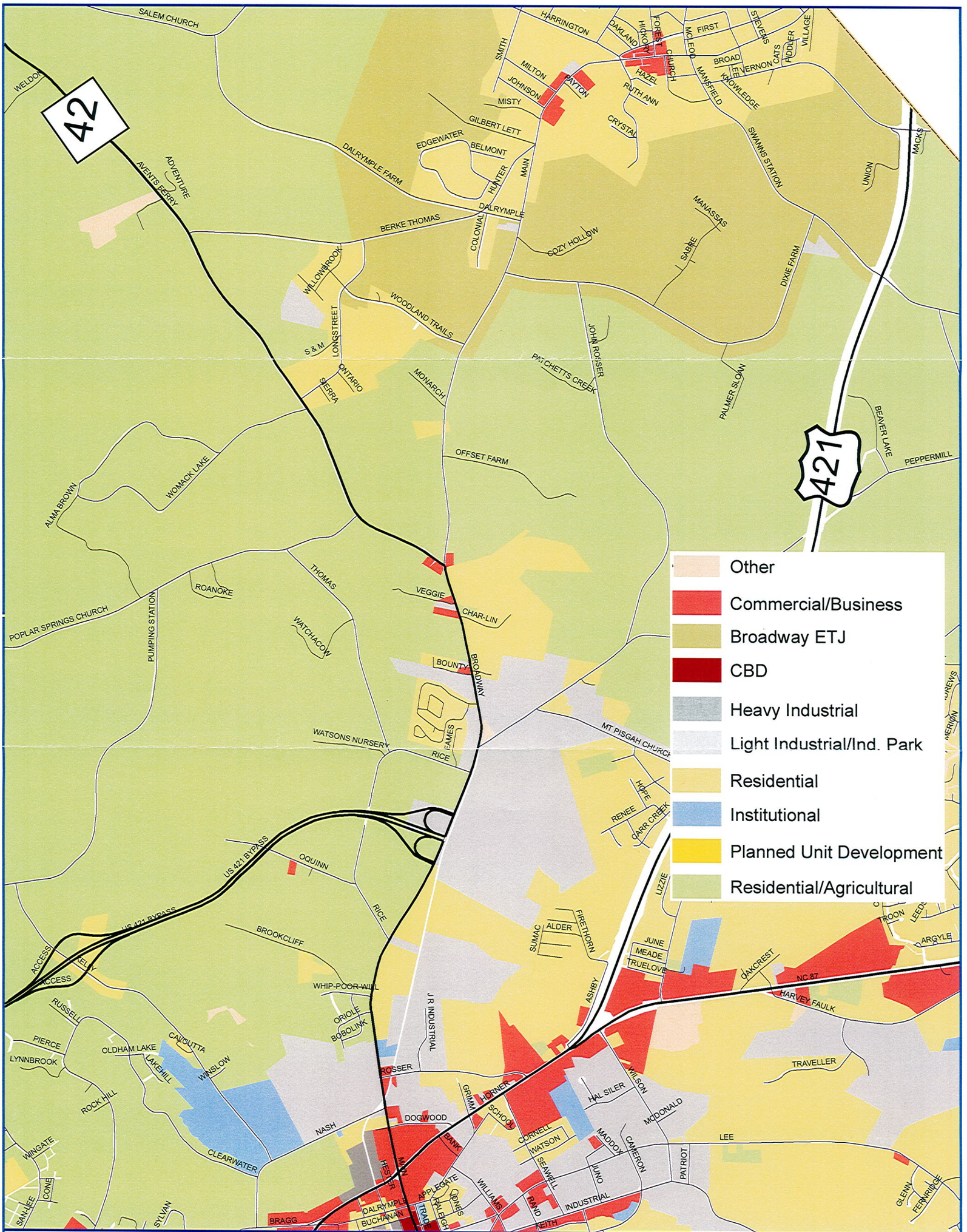
I also have a question: the other day, I received a cancellation notice in Outlook for the August 10 scoping meeting – is that correct that the meeting has been cancelled? Or is it just something funny going on with my Outlook Calendar? If it was cancelled, can you tell me the reason and whether it has been rescheduled?

Thanks,
Matt

Matthew Day, AICP
Senior Planner
Triangle Area Rural Planning Organization
Triangle J Council of Governments

PO Box 12276 / RTP, NC 27709
919-558-9397
mday@tjcog.org

www.tjcog.org
www.tarpo.org



LEE COUNTY

Current Zoning

Triangle Area Rural Planning Organization
July 18, 2011

DRAFT - For Discussion Purposes

North Carolina Department of Cultural Resources
State Historic Preservation Office
Ramona M. Bartos, Administrator

Governor Pat McCrory
Secretary Susan Kluttz

Office of Archives and History
Deputy Secretary Kevin Cherry

April 26, 2013

MEMORANDUM

TO: Megan Privett
Office of Human Environment
NCDOT Division of Highways

FROM: Ramona M. Bartos RMB for Ramona M. Bartos

SUBJECT: Historic Architectural Resources Survey Report, Improvements and Widening to NC 42/SR 1579 (Broadway Road), R-3830, Lee County, ER 11-0255

Thank you for your letter of April 15, 2013, transmitting the above report.

For the purpose of compliance with Section 106 of the National Historic Preservation Act, we concur that the following properties are eligible for listing in the National Register of Historic Places under the criteria cited, and that the proposed National Register boundaries appear appropriate:

- **Sloan House** (LE 0587, Property 44), Criterion C for architecture; and,
- **Broadway Historic District** (LE 0588-0599 and LE 0811-0815, Properties 63-86), Criterion A for commerce and for the growth and development of Broadway, and Criterion C for architecture.

We concur with the contributing/non-contributing determinations for the Broadway Historic District, except for the (Former) Central Bank and Trust Company/Town Hall. We believe that the major changes to the historic fenestration patterns and the application of stucco have compromised the building's historic integrity making it non-contributing to the historic district.

We also concur that barring additional information to the contrary, the remaining properties listed in **Appendix C** are not eligible for listing in the National Register.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-807-6579 or renee.gledhill-earley@ncdcr.gov. In all future communication concerning this project, please cite the above referenced tracking number.

cc: Mary Pope Furr, NC DOT, mfurr@ncdot.gov

Federal Aid #: **STP-0042(49)** *TIP#:* **R-3830** *County:* **Lee**

CONCURRENCE FORM FOR ASSESSMENT OF EFFECTS

Project Description: Improvements and Widening to NC 42/SR 1579 (Broadway Road), Lee County

On *August 5, 2014*, representatives of the

- ☒ North Carolina Department of Transportation (NCDOT)
- ☒ Federal Highway Administration (FHWA)
- ☒ North Carolina State Historic Preservation Office (HPO)
- ☐ Other

Reviewed the subject project and agreed on the effects findings listed within the table on the reverse of this signature page.

Signed:

Megan Brivetti — 8/5/14
Representative, NCDOT — Date

[signature] — 8-5-14
FHWA, for the Division Administrator, or other Federal Agency — Date

Renee Gledhill-Earley — 8-5-14
Representative, HPO — Date

State Historic Preservation Officer — Date

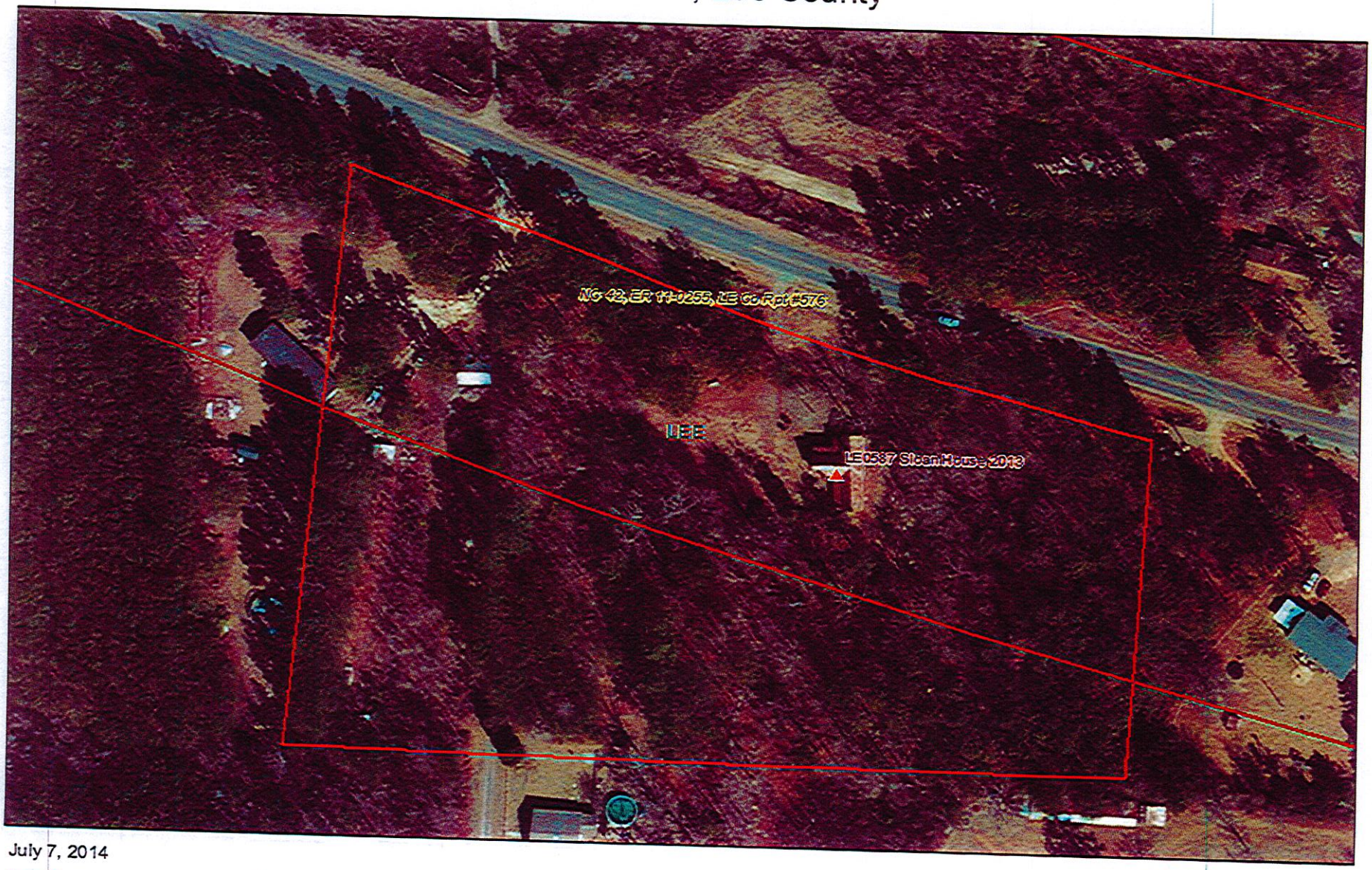
Federal Aid #: **STP-0042(49)** *TIP # :* **R-3830** *County:* **Lee**

Property and Status	Alternative	Effect Finding	Reasons
Sloan House (LE0587), NR Eligible (Criterion C)		No Adverse Effect	with a temporary construction easement within the permanent utility easement there will be a No Adverse Effect provided that an appropriate landscape plan with low ornamental plantings be executed in the utility easement and behind it if the property owner is amenable to it.
Broadway Historic District (LE0822), NR Eligible (Crit. A & C)		No Effect	The end of construction limits for the project are located outside of the historic district boundary, to the north of the district

Initialed: NCDOT _____ FHWA DB HPO BGE

FHWA Intends to use the SHPO's concurrence as a basis for a "de minimis" finding for the following properties, pursuant to Section 4(f):
Sloane House (LE0587)

NCHPO GIS, Lee County



July 7, 2014

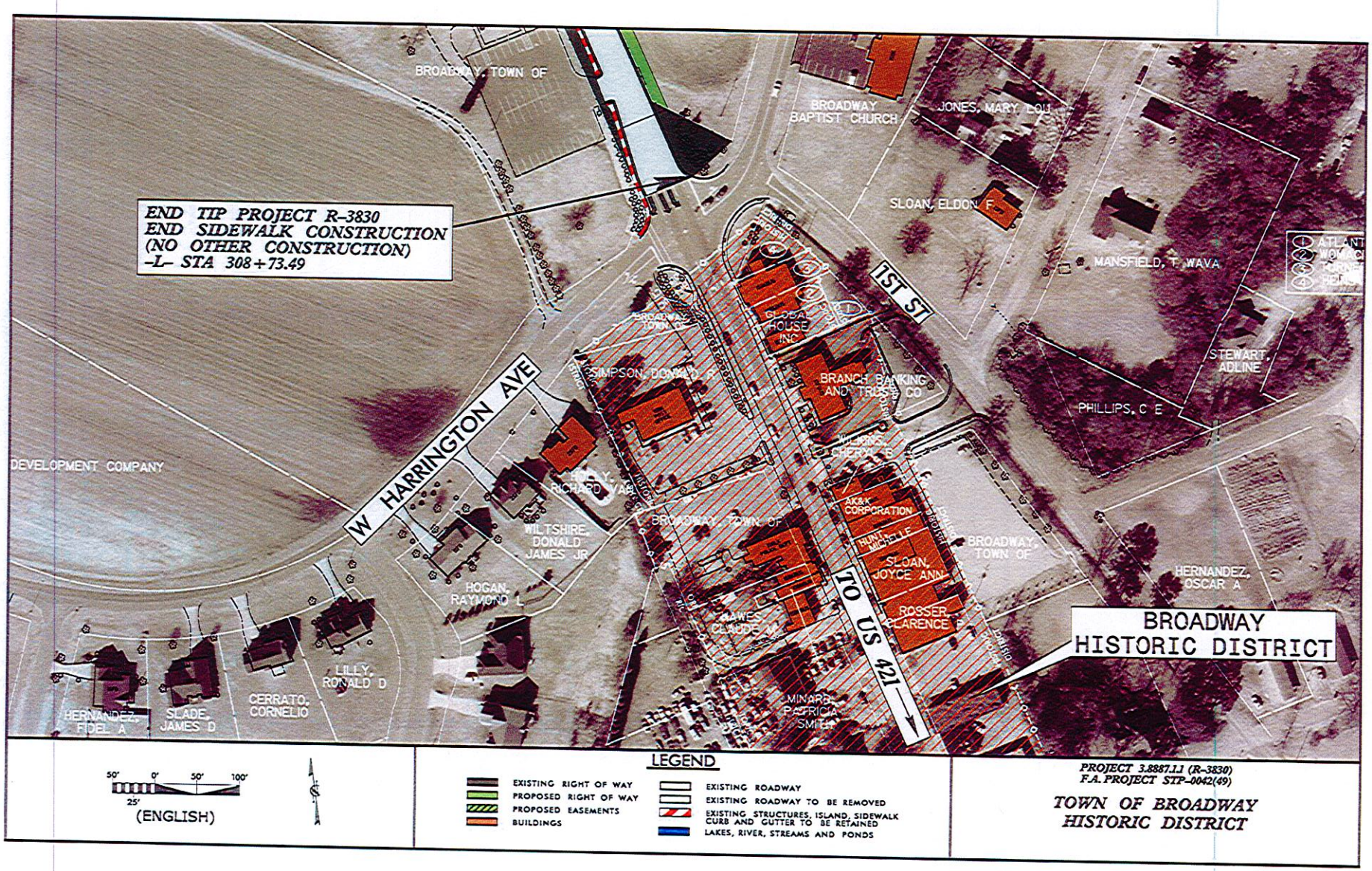
<all other values>
E
Blue Ridge Parkway
Blue Ridge Parkway
<all other values>
E

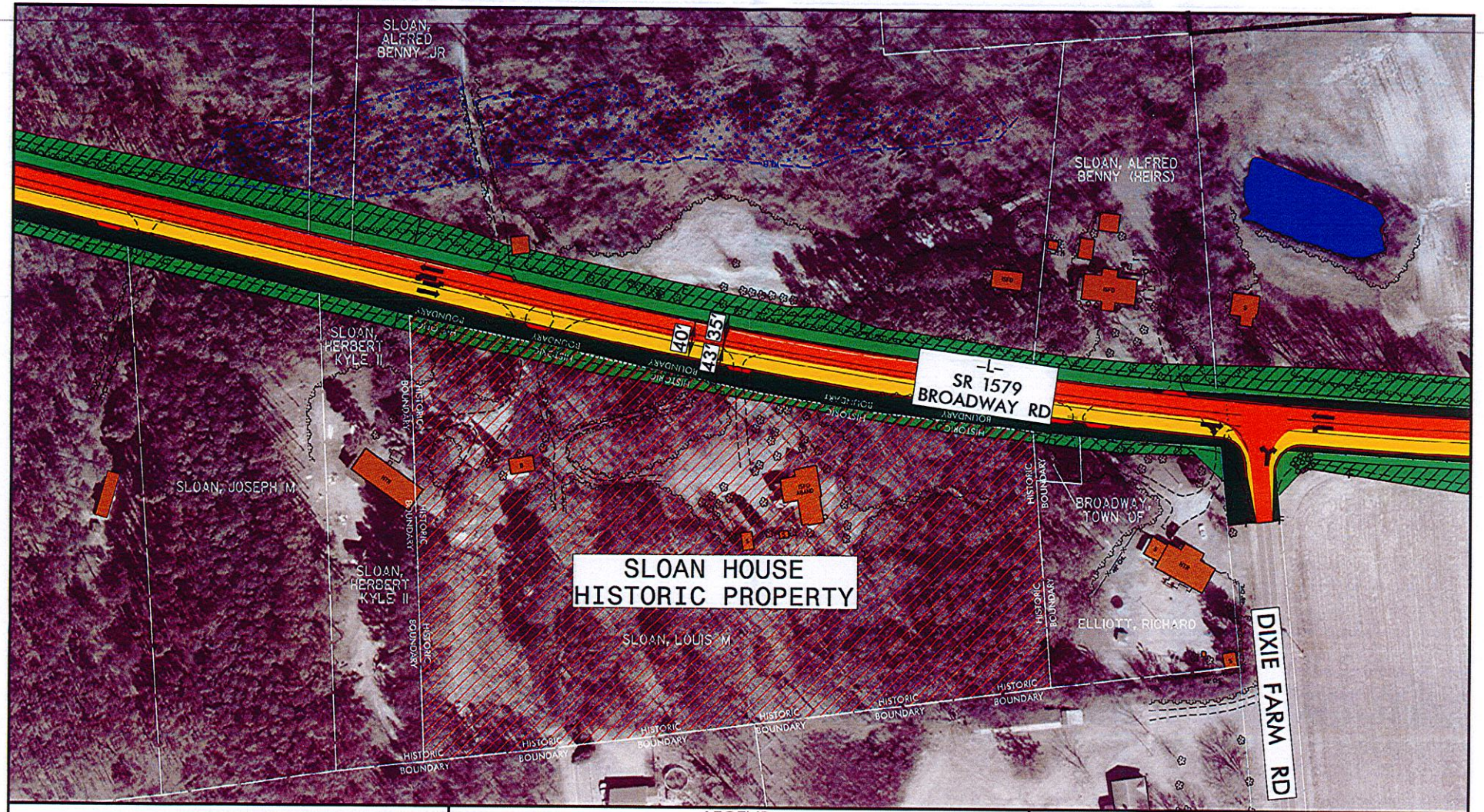
1:1,627

0 0.0125 0.025 0.05 mi

0 0.02 0.04 0.08 km

Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,


END TIP PROJECT R-3830
END SIDEWALK CONSTRUCTION
(NO OTHER CONSTRUCTION)
-L- STA 308+73.49
BROADWAY, TOWN OF
BROADWAY BAPTIST CHURCH
JONES, MARY LOU
SLOAN, ELDON F
MANSFIELD, T WAVA
1ST ST
GLOBAL HOUSE INC
BRANCH BANKING AND TRUST CO
SIMPSON, DONALD A
STEWART, ADLINE
PHILLIPS, C E
W HARRINGTON AVE
DEVELOPMENT COMPANY
WILTSHIRE, DONALD JAMES JR
HOGAN, RAYMOND L
AK&K CORPORATION
SLOAN, JOYCE ANN
ROSSER, CLARENCE P
BROADWAY, TOWN OF
HERNANDEZ, OSCAR A
TO US 421
BROADWAY HISTORIC DISTRICT
LILLY, RONALD D
CERRATO, CORNELIO
SLADE, JAMES D
HERNANDEZ, FIDEL A
MINARD, PATRICIA SMITH
50' 0' 50' 100'
25'
(ENGLISH)
LEGEND
EXISTING RIGHT OF WAY
PROPOSED RIGHT OF WAY
PROPOSED EASEMENTS
BUILDINGS
EXISTING ROADWAY
EXISTING ROADWAY TO BE REMOVED
EXISTING STRUCTURES, ISLAND, SIDEWALK CURB AND GUTTER TO BE RETAINED
LAKES, RIVER, STREAMS AND PONDS
PROJECT 3.8887.11 (R-3830)
F.A. PROJECT STP-0042(49)
TOWN OF BROADWAY
HISTORIC DISTRICT



50' 0' 50' 100'
25'
(ENGLISH)

LEGEND

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPOSED EASEMENTS
- BUILDINGS
- EXISTING ROADWAY TO BE RESURFACED
- PROPOSED ROADWAY
- PROPOSED STRUCTURES, ISLAND, CURB AND GUTTER
- LAKES, RIVER, STREAMS AND PONDS

PROJECT 3.8887.1.1 (R-3830)
F.A. PROJECT STP-0042(49)

SLOAN HOUSE
HISTORIC PROPERTY

EIS RELOCATION REPORT

North Carolina Department of Transportation
RELOCATION ASSISTANCE PROGRAM

x☐ E.I.S. ☐ CORRIDOR ☐ DESIGN

WBS ELEMENT:	38887.1.1	COUNTY	Lee	Alternate	of Alternate
T.I.P. No.:	R-3830				
DESCRIPTION OF PROJECT:	NC 42 –SR 1579 improvements from US 421 in Sanford to East Harrington Avenue in Broadway.				

ESTIMATED DISPLACEES

Type of Displacees	Owners	Tenants	Total	Minorities
Residential	8	4	12	1
Businesses	2	0	2	0
Farms	0	0	0	0
Non-Profit	0	0	0	0

INCOME LEVEL

0-15M	15-25M	25-35M	35-50M	50 UP
0	0	9	3	0

VALUE OF DWELLING				DSS DWELLING AVAILABLE			
Owners		Tenants		For Sale		For Rent	
0-20M	0	$ 0-150	0	0-20M	0	$ 0-150	0
20-40M	0	150-250	0	20-40M	0	150-250	0
40-70M	3	250-400	0	40-70M	103	250-400	0
70-100M	3	400-600	4	70-100M	112	400-600	12
100 UP	2	600 UP	0	100 UP	712	600 UP	0
TOTAL	8		4		927		12

ANSWER ALL QUESTIONS

Yes	No	Explain all "YES" answers.
	x	1. Will special relocation services be necessary?
	x	2. Will schools or churches be affected by displacement?
x		3. Will business services still be available after project?
x		4. Will any business be displaced? If so, indicate size, type, estimated number of employees, minorities, etc.
	x	5. Will relocation cause a housing shortage?
		6. Source for available housing (list).
	x	7. Will additional housing programs be needed?
x		8. Should Last Resort Housing be considered?
	x	9. Are there large, disabled, elderly, etc. families?
	x	10. Will public housing be needed for project?
x		11. Is public housing available?
x		12. Is it felt there will be adequate DSS housing available during relocation period?
	x	13. Will there be a problem of housing within financial means?
x		14. Are suitable business sites available (list source).
		15. Number months estimated to complete RELOCATION? 18

REMARKS (Respond by Number)

3. The loss of the 2 businesses involved will not affect the area.
4. Citgo,small business,4-6 employees, 1-2 miniorties.
C & D Warehouse,small business, 2-4 employees, 1-2 minorities.
6. Realtors, MLS, newspapers and private market.
8. As required by law.

11. Section 8 housing in Sanford.

12. There are no government projects competing for housing.
14. Same as # 6 above.

Note: The Shallow Well United Church of Christ cemetery will be affected by this alternate and approximately 25 graves could be involved.

John Williams — 5-20-14
Right of Way Agent — Date

Relocation Coordinator — 6/3/14
Date

APPENDIX 2

Scientific Names of Species Identified in Project Area

R-3830

Scientific Names of Species Identified in Report

Plants

Common Name	Scientific Name
American beech	*Fagus grandifolia*
American hornbeam	*Carpinus caroliniana*
American pokeweed	*Phytolacca americana*
Blackberry	*Rubus argutus*
Black gum	*Nyssa sylvatica*
Black willow	*Salix nigra*
Broomsedge	*Andropogon* spp.
Cattail	*Typha latifolia*
Chinese privet	*Ligustrum sinense*
Common greenbriar	*Smilax rotundifolia*
Dogfennel	*Eupatorium capillofolium*
Ebony spleenwort	*Asplenium platyneuron*
Fescue	*Festuca* spp.
Giant cane	*Arundinaria gigantea*
Grapevine	*Vitis rotundifolia*
Goldenrod	*Solidago* spp.
Highbush blueberry	*Vaccinium corymbosum*
Japanese stilt grass	*Microstegium vimineum*
Japanese honeysuckle	*Lonicera japonica*
Laurel greenbriar	*Smilax laurifolia*
Loblolly pine	*Pinus taeda*
Netted chain fern	*Woodwardia aereolata*
Paw paw	*Asimina triloba*
Poison ivy	*Toxicodendron radicans*
Red chokeberry	*Aronia arbutifolia*
Red maple	*Acer rubrum*
Rice cutgrass	*Leersia oryzoides*
Russian olive	*Elaeagnus angustifolia*
Seedbox	*Ludwigia alternifolia*
Small spike false nettle	*Boehmeria cylindrica*
Smartweed	*Polygonum hydropiperoides*

Southern lady fern	*Athyrium filix-femina*
Sweetgum	*Liquidambar styraciflua*
Tag alder	*Alnus serrulata*
Tearthumb	*Polygonum sagittatum*
Tulip poplar	*Liriodendron tulipifera*
Wax myrtle	*Morella cerifera*

Animals

Common Name	Scientific Name
American crow	*Corvus brachyrhynchos*
American kestrel	*Falco sparverius*
American toad	*Bufo americanus*
Banded water snake	*Neroida fasciata*
Black racer	*Coluber constrictor constictor*
Black rat snake	*Elaphe obsolete*
Bluegill	*Lepomis macrochirus*
Caddisfly	Order Trichoptera
Canada goose	*Branta canadensis*
Carolina chickadee	*Poecile carolinensis*
Channel catfish	*Ictalurus punctatus*
Common mouse	*Mus musculus*
Corn snake	*Pantherophis guttatus*
Coyote	*Canis latrans*
Crayfish	Subfamily Astacoidea
Dobsonfly	Subfamily Corydalinae
Eastern bluebird	*Sialia sialis*
Eastern box turtle	*Terrapene carolina*
Eastern chipmunk	*Tamias striatus fisheri*
Eastern cottontail	*Sylvilagus floridanus mallurus*
Eastern fence lizard	*Sceloporus undulatus*
Eastern meadowlark	*Sturnella magna*
Five-lined skink	*Plestiodon fasciatus*
Great blue heron	*Ardea herodias*
Gray squirrel	*Sciurus carolinensis carolinensis*
Mayfly	Order Ephemeroptera
Pileated woodpecker	*Dryocopus pileatua*
Raccoon	*Procyon lotor*
Red-shouldered hawk	*Buteo lineatus*
Snapping turtle	*Chelydra seprentine*
Spring peeper	*Pseudacris crucifer*

Stonefly	Order Plecoptera
Tufted titmouse	*Baeolophus bicolor*
Turkey vulture	*Cathartes aura*
Virginia opossum	*Didelphis virginianus*
White-tailed deer	*Odocoileus virginianus*
Yellow-bellied sapsucker	*Sphyrapicus varius*